Mr. B.B. Goldsmith
2822 Kelsey St.,
Berkeley #412

J. Lane, Happy Camp P.O.

No. 17.

No. 17.

Field Book

of

Willis Lo. Jepson.

[If lost, finder please return to the owner by mail, P. O. Box 103, Berkeley, California, and receive reward.]

Vacaville

No. 2627. Populus Fremonti Wats. Trees along Ulatis Creek in the village in full flower. The aspect of the staminate tree is quite different from that of the pistillate. The erect shoots in the top of the tree have their upper half barren of flowers; these points stick up out of the body of the tree curiously, bearing only leaf buds.

The aments burst through the winter bud splitting it in half, the scales above and below covering like one boat-shaped structure and usually falling before the catkin (ament) has matured its anthers.

Feb. 28 – Mar 2, 1907.

Spms. destroyed by insects (1912).

The aments are maroon red, gorgeous when they first appear due to the intense color of the anthers which rapidly lose color as they ripen. Aments 3–4 inches long. The bracts are regularly laciniate-fringed, shorter than the flowers, and fall as soon as the aments elongate and release them (before anthesis). Mar. 1, 1907.

Counts of Stamens:

Fls. from lower portion of ament: 72, 64, 56, 68.

Fls. from tip of ament: 47, 50, 48. 49.

Fls. from middle of ament: 67, 67, 64, 65.

(All taken from one ament).

Berkeley

- C. H. McCharles, Tustin, Orange Co., Cal. says Juglans Californica grows in Santa Ana Range. The trees are in Breda Cañon on the road from Fullerton to Chino (at about 750 ft. alt. acc. Contour Map).
- Fire-resistance. See Leiberg, For. Cond. Northern Sierra Nevada. Thos.
- Nuttall. How closely he must have stuck to Monterey! C. Nuttall, Sylva, 1. 20.

March, 1907.

- Pinus monticola, Platt, Independence Lake, Sept. 1906, Cotyledons, 8, 5, 7, 7, 8, 7, 8.
- Cupressus macrocarpa, "150 to 200 seeds in a cone, 30% only good. Light-colored ones poorest. Some trees yield better seed than others. Native trees at Monterey poorest, yet have finest largest cones!" -Miss Crane, Dec. 12, 1906.
- Black Oak wood (Californica) poor, brittle.

- cont. from p. 37 sep. The old wagon trail up North Fork Lewis Creek which I followed slipped from one side of the creek to the other, that is from Monterey Co. to San Benito, but practically all my collecting was done in Monterey Co., especially on the "headwaters" or easterly branches which are, as to my trail, wholly in Monterey Co.

Pepper Island
Bolinas, Marin Co.

East side of rift = earthquake fault.

- Plumbago lanceolata, badly killed out, only a few plants showing any signs of life. Stumps in low places utterly dead black. Branched candices 3 in. high. Species will not survive. (On west side of rift healthy and flourishing
- Grindelia cuneifolia - shrubs all killed except a few in high places. Very marked and complete destruction. But there is a lot of it dead on the west (uplifted) side of rift!

Pepper Island, April 8, 1907
East side of rift.

- Distichlis maritima, looks sickly in one large depressed area just east of rift. Area adjoining on west side healthy.
- Populus species healthy.
- Salicornia occidentalis - this is most striking. East of rift is a great area dull brown, west a great area greenish. On examination I find the dull brown to be composed of utterly dead plants or of unhealthy plants consisting of a more or less exiguous axis with one or few fleshy branchlets made up of several joints. If

Pepper Island. Bolinas April 9, 1907.

the health of these low plateau areas east of rift is not due to subsidence east of rift it is remarkable that the unhealthy area should conform so closely to the fault line. A little Jaumea carnosa is mixed with the Salicornia but otherwise the Salicornia is pure. I do not find any Jaumea carnosa east of rift.

– The above notes made on expedition with Dr. Gilbert of U.S. Geol. Surv. who took me with him as plant expert to study that side of the problem. See paper in Carnegie Publ.

Ocean Shore West of Lake Merced.
Sunday, April 21, 1907.

– went today with T. Merle Bayless to the sand hills directly on the ocean south of the South-side Life Saving Station. The little hollows in the sand dunes formed bowl-shaped miniature valleys with nothing to see save the blue sky above and closely flower carpeted slope below. Things were in great fettle. Bayless said: "Now isn't this nice. This is just as Nature made it. I call this Paradise Valley! Its Eden!"

No. 2628. Platystemon Californicus Ingleside.

1. Petals all cream color.
2. Petals cream color with a sulphur spot at base.
3. Petals all sulphur except small crescent of white cream on each side towards base, or the

San Francisco,

"Sand-dune Valleys" south of Life Stat., opposite Lake Merced.

crescents joined across. These are the most striking variations — Platystigma lineare, Bayless has marked plants to take seeds. The flowers are cream color, or with 3 outer petals egg-yellow, or " " " with central egg-yellow splotch. The flowers are a little past, in Paradise Valley, now, April 12 of this year would have been just right for collecting herb. specimens.

No. 2629. Phacelia distans Bth. Sand dune slopes.

No. 2630. Collinsia bartsiaefolia. Typical plants of the Sand dune hollows.

No. 2630a. Eschscholtzia californica

April 21, 1907.

No. 2631. Orthocarpus eriantlus var. versicolor Japan. Ingleside.

No. 2632. Lotus strigosus Greene. Erect or subrect. Flowers yellow (all parts of corolla) fading reddish. Wings and the very short keel forming a rather compact structure and turned sidewise against the banner, that is, twisted half round, ~~the~~ one wing uppermost or facing the observer and covering the structures below. Sand-dunes.

No. 2633. Lotus L. heermanii Greene. Corolla clear yellow, fading crimson. Sand-dunes.

No. 2634. Linanthus androsacea. Fls. white with yellow throat to corolla. Also saw corollas all on plant pink-red. Sand dunes.

Sand-dune Valley s. of Life Station, S.F.
(Opposite Merced Lake).

No. 2635. Lupinus Chamissonis Esch.
Sand dunes. Corolla blue, banner with central white splotch which is only faintly dotted. Det. also C. P. Smith.

No. 2636. Lupinus arboreus Sims.
Upper lip scarcely or at all notched. Corolla clear lemon yellow. Det. also C. P. Smith.
(L. arboreus Sims det. C.P.S.)

No. 2637. Lupinus hybrid.
Related to 2635. Upper lip deeply cleft. Banner whitish, yellow blush at center with fine dots. Wings faintly pinkish white. Whole corolla aging pinkish except the yellow "spot". Blue-veined spot at base of

April 21, 1907.

wing. Keel ciliate above. Keel ciliate on upper half, strongly so. But I find on another plant the upper calyx tooth not cleft nor scarcely even notched. Not true! The lobes are convivent and deceiving, altho I think the cleft scarcely as deep as in other case. The banner in age may become purple! The flesh-tints of several kinds are very fine in this species. Leaflets 5 to 9.
Sand-dunes.

No. 2638. Lathyrus littoralis Endl.
Banner crimson fading lilac or purple. Wings permanently white. Deep tap-root. Not on beach exactly but on foot of sand-dunes at edge of beach.

San Francisco.
Apr. 21, 1907.

"No. 2639. Lupinus nanus Dougl. This is very distinct from L. nanus as the lips grow together at Ingleside. The corolla is a pale lavendar (drying the ordinary blue!) The upper calyx tooth is not merely cleft but the lobes are divergent in a curious way that is striking as compared with L. nanus.

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cont. from p. 34 seq.

– Wartham is the correct name for the postoffice and settlement and so spelled on U.S. Postal Map, 1889 and in A.B.C. Guide for 1895. 9 miles from alcalde. The creek is spelled Waltham on U.S. topographic map (Coalinga) and Cal. Auto. Assn. map, but Wartham on U.S. Postal Map above noted.

Mt. Diablo Apr. 26, 1907
Trees and Shrubs, Mitchell Cañon Basin

– Acer macrophyllum, frequent in & towards bottom of all the cañons
– Umbellularia californica, common.
– Ptelea trifoliata, well distributed. Male and female flowers on separate bushes, with complementary vestiges in each. Parts in four except gynoecium. no. 2648.
– Quercus Wislizenii, scrub on mt.
– Heteromeles arbutifolia
– Ceanothus sorediatus, in fl. 15 feet high, several stems from base usually. – No. 2645.
– Quercus Wislizenii, in lower part of Mitchell Cañon.

No. 2640. Lewisia rediviva. Styles 7, 7, 8, 6. Stamens 40 or 50, but not counted exactly. Petals 13, 14, 15, 13. Sepals 6, 7, 7, 7.

Mt. Diablo

Pinus Coulteri. This is not on the side hills anywhere about Deer Flat. From Deer Flat we worked into every cañon eastward on the basin of Mitchell Creek. It was a hard long pull, working our way over spurs, through brush, and across cañons. Extensive burning out a year or so previously made it a little easier. Of course I did not examine every pine tree in the basin but I saw no pine tree that did not even at a distance look like Digger Pine. Worked as far eastward as the divide looking down into the creek heading in towards North Peak, i.e. Donner Creek.

April 26, 1907.

No. 2644. Streptanthus bispidus Gray. Petals purplish, lower pair diverging more than upper pair and more rotately spreading. Low plants, but few seen, on triturated shale outcropping.

No. 2642. Juniperus Californica Watson. Bush reclining or forming a low mound 3 to 10 feet high and 10 to 20 feet broad.

Head of Mitchell near saddle of divide at head of creek heading into saddle of Mt. Diablo.

– Rhamnus crocea ilicifolia, 6 to 8 ft. h. but tree-like with very distinct trunk ½ total height.

Mt. Diablo and

No. 2643. Eschscholtzia californica Cham. var. crocea Jepson.
San Ramon valley fields

No. 2644. Quercus Douglasii
Mt. Diablo. Stump sprouts.

No. 2645. Ceanothus sorediatus. D. & See note 4 pp. back.

No. 2646. Quercus agrifolia.
Mt. Diablo.

No. 2647. Quercus Wislizenii
Stump sprouts in burnt chaparral on Mt. Diablo

No. 2648. Ptelea See note page 15. ~~pp. back~~. Mitchell Cañon.

No. 2648a Prunus Sabiniana
Saddle at eastern head of Mitchell Cañon.

No. 2648b. Quercus agrifolia

No. * 2648c Prunus subcordata Benth.
Mt. Diablo, Mitchell Canyon – Apr. 26

Walnut Creek, Apr. 27, 1907.

No. 2649. Juglans californica
Mr. Goldsmith reports wild trees between Pacheco and Concord, some young ones. The specimens of this number came from a tree in creek bed near Walnut Creek 18 ft. high, slender young tree. Stamens 29.

No. 2650. Populus Fremonti
San Ramon Creek. Bark specimen 5½ inches thick.

– "Mr. Hemme, Alamo Station, 2 mi. from Danville, says he cut Redwood from the S.W. cañon of Mt. Diablo. Showed me the rail-fences, for which he cut the rails. The rails were redwood!" – R. H. Platt.

Berkeley

Redwood on hill, Charter Hill, the Bolton stock from hillside taken up and put out in hollow below "C". 378 trees put out: Job begun Feb. 16; finished Feb. 19. Gentle soaking rains on 20, 21, 22, 24, & Mar, 5th and several times in March. Landslide Mar. 23."

This note copied from a card which had no year date. Year can be confirmed from newspaper scrap-book clippings, but very nearly 1907.

1907

- Addenda to p. 147 -

[Marble Mt. Going west from Marble Mt. the streams running northerly to the Klamath were on the right and streams running southwesterly on the left. The 1887 county map of Siskiyou shows Independence Creek cutting straight across our trail from Marble Mt. west to Dutch Henrys on the Klamath. I am certain this is wrong! We followed a ridge, running soon plumb into a rock nut or peak in the ridge (which I called "Packer's Mt.") which had Brewer Spruce on east of it. We circumvented this peak to the left. Then finally slanted down the mountain, but not crossing any valleys or canons to Cudahay Valley. — Supplement to pages 147-150 following. Written Sept. 1912]

Benicia

— came to Benicia to interview Herbert Kullman of the Kullman — Salz Tanning Co. He says: — The product of the California factories in heavy leather in 1906 had a value of $5,000,000. The value has equaled this for several years. On account of the increase in price of leather the amount does not represent so many sides as in previous years. I have never noticed adulteration. Saw Chesnut-Oak (Chinquapin) about Sherwood where there are fine trees but not enough of it to serve as an adulterant extensively. I made inquiries about it because I thought it might give color to the leather.

Live Oak (Quercus agrifolia) has been sent us

May 5, 1907.

by a man from Santa Barbara who thinks he has enough to make it pay. I don't know anything about its value. Black Oak (Quercus Kellogii) is undesirable. It blackens the leather.

Quebracho is our chief source of supply (supplementary supply). About 25 per cent of our leather is tanned with it. Germany makes large use of it, 75 % of her tanning. So does England. It comes to us in dry extract, which is not so desirable as liquid extract which they use on the Atlantic Coast. It comes to New York and vicinity in the log. They use the whole log except the bark. Quebracho is of the Argentine. Its

Benicia, May 5, 1907.

marked inroads have been made on the original supply or resource. Most all California tanners are using Quebracho.

Goshen Junction (Tulare Co.) May 8, 07

No. 2651. Atriplex. On alkali, often 3 times as large, but the larger plants on spots less alkaline and still green.

No. 2652. Nitrophila occidentalis. Sepals 5, faintly flesh-color, the stamens 5 and opposite them. Flowers 3 in the axil, the central one usually sessile, the lateral shortly pedicelled, with a bract and two laterally placed short bractlets.

Coalinga, May 9, 1907.

From Goshen Junction to Armona the Railway runs through the Hanford district. Westward it passes through or rather over one of the most desolate plains imaginable. Nothing but dry grass as far as one may see. Occasionally a dry water course with willow and some cottonwood. We go on and on, past Huron the acme of desolate shanty town of the San Joaquin plain and finally I see the derricks sticking out of the foothills, at this distance like pine trees following a ledge outcropping. Coalinga shows every evidence of being an oil town. The strange attracts less attention on the street than in Fresno. We dined in Whisky

Coalinga, May 9, 1907.

Row (11 saloons on the block) and after getting our outfit together started out for Alcalde. Passed it a mile and camped.
No. 2653. Juniperus Californica. First tree noticed near Alcalde and above a quarter mile there were occasional trees scattered over the hill. Not "trees" either only bushes 5' to 10 ft. high.
- This Coast Range country is markedly coast range with its soft slopes running into abruptest walls. The streams run hither and yon, and wind about. You can never tell where they are going to come out. In the Sierras they are sharply started by divides. This stream we are encamped on, Waltham

Waltham Creek, May 9, 1907.
W. Fresno Co.

Creek, runs out over the plains as a real water stream now. So does the Tule River, White River etc on the other side of the San Joaquin but these streams have not done so for years. It is all owing to the great rainfall in the last two years. Tulare Lake is 60 miles long. Two years ago it was quite dry.

Salvia carduacea forms great blue patches at the bases of the foothills at Coalinga.
- Hopping says that in Fresno valley, S. fork Kaweah, there are five oaks: Quercus lobata (4 or 5 ft. diam.), Q. Douglasii, Q. Wislizenii, Q. chrysolepis, Q. Breweri. Altitude 5000 ft. or at least 4500 ft., the Yellow Pine there and beginning heavy just above.

Waltham Creek, 1000 ft
(Fresno Co., near alcalde)

- No trees here at all except Cottonwood (Populus fremonti), the hills utterly barren. Brush of spaced individuals of Artemisia Californica, Stenotus linearifolius, and Compositi brush like the latter but not resinous and the heads without ray.

No. 2654. Delphinium parryi gray. Simple + cylindrical raceme or the lower flowers long. pedicelled, or the stem branching both at base and above. Flowers light purplish blue, or white-fl. individuals not uncommon. Lower pair of petals cleft, upper glabrous, veined, whitish + notched.

No. 2655. Eriophyllum Jepsonii. Taken from near base, i.e., representing nearly full height. See p. 36 at bottom.

No. 2656. Grass, the commonest Bromus rubens L.

May 10, 1907.

one on the steep sharp slopes, covering the hills as the most abundant plant species in continuous colonies

No. 2656 A. Godetia. Petals with a deep (sharply defined) purple zone at base, above this white, shading to the lilac-tinged apex, outside wholly lilac. Some fls. show sprinkle of dots above the purple. Stigmas white, narrowly oblong, densely short hairy. Shorter anthers often purple dotted, these erect and dehiscing first, the 4 longer stamens lying close against the sides of the flower or even pushed through the petal intervals to the outside of the flower. These stand erect next, dehisce just before the style becomes erect and expands its stigmas, it (the style) having previously lain to one side of the flower

Sup Carlos Range

Waltham Creek

— SW. Fresno Co. — c. 1000 ft.

No. 2657. Escholtzia California Cham. Numerous stems from a stout tap-root (in its first year probably) but doubtless to be perennial. Note the long-~~stemmed~~ peduncled flowers (now in fruit.) from the base (such an early stage suggesting one of Greene's species) and the long flowering stems which succeed them, the peduncles shorter and shorter until at the top they are very short. Note also the dif. in size of fls. the spms. all from one plant.

No. 2658. Chaenactis.

No. 2659. Calochortus lilacinus Wats. Bulbs mostly not deep-seated. Petals pure lilac, no spots, hairy except at tip. Gland like a kink of white froth, at base.

No. 2660. Eschscholtzia. Annual. E. lemmoni greene.

No. 2661. Quercus dumosa Nutt. 2 ft. through at base + 30 ft. h.

May 10, 1907

crispum Greene.

No. 2662. Allium. Inner petals lanceolate with crinkly white edges. Fls. deep rose-purple. Colonies on wet now dry north slope. Cracked soil.

No. 2663. Godetia. Clarkia purpurea ssp. quadrivulnera either purple or pale pink corolla. G. quadrivulnera Spach.

Following up Waltham Creek four miles we came to the first Quercus Douglasii a few trees at the bottom of a hillside swale. The Juniper increases and spots the hills thickly. At 7 miles we struck a Quercus Engelmanni, with denser head more drooping sides than Quercus Douglasii. Populus fremontii shows scarcely any reproduction along Waltham Creek. Trees past maturity, mostly decaying, with limbs breaking off. In a bend of the river for a space of 50 yards young trees and seedlings form a cluster, and above

Waltham Creek

(sw. Fresno Co.) c. 1000 ft.

this spot an occasional tree. Below and out on the plains it strikes me that only in successive freshet years would new growth make a stand. At the noon camp we are at the base of the main range which is well but not densely wooded with small stuff. Quercus Douglasii, Engelmanni, lobata in valley large trees, Pinus Sabiniana. The higher brush is Adenostoma fasciculatum, Nolid Rhamnus ilicifolia and a colony of Eriodictyon tomentosum, its silver bushes making a striking sight. On a curving mesa-like slope I saw the finest show of of Achryachaena mollis I ever saw, a great mass of it, like a silver lakelet, sweeping along the slope. It was in fruit and suggested white flowers.

May 10, 1907.

No. 2664. ~~Godetia~~ Clarkia purpurea ssp. quadrivulnera Spach. Purple or lilac corolla, in each case crimson sprinkled finely more noticeable in case of lilac. Pods obscurely 8-ribbed & roundish but perhaps more obvious in ribbing when mature. Stigma crimson. G. tenella of Col. and.

The main ridge west of Waltham Creek is timbered about to the density of the main foothills of Inca Mts. before cutting and burning or. perhaps a little more so. Near the Jaunt Ranch we met Buckeye, Sambucus glauca, and Fraxinus dipetala for the first time, the latter 12 ft. h. Ceanothus integerrimus in full flower!

No. 2665. Salix. Rough bark. 28 ft. high; crown broad-headed.

No. 2666. Pentstemon centranthifolius Benth. Great patch of color on valley flat.

= Waltham !! (Fresno Co.).

Warthan Creek. c. 1000 ft.

[Waltham is the P.O.] cf. p. 14, ante.

B. mollis
Bromus hordeaceus L.

No. 2667. Grass, the most common grass on the valley flats, a 1000 times more common than anything else, tending to form pure colonies over extensive areas. Notice the small form of it in less fertile or moist spots. 2667a

- Rhus trilobata, 7 ft. h.
- Chenopodium Californicum
- No Platanus racemosa seen on west side of valley (San Joaquin), and none along Waltham Creek
- Ceanothus cuneatus. Many stems forming a clump as in Sierra Foothills.
- Pinus Sabiniana, some trees 90 feet high, Hopping says 95 to 100., and possibly they are. They are of every variety of branching. Two main forks within a foot

May 11, 1907.

of the ground, or ten feet up, or midway (as most commonly), or very near the top of tall trees. These two forks giving rise to very various expressions depending upon the divergence of the forks and the kind of a "brush" to which they give rise. A type occasionally seen and always remembered has the forks diverging widely, each unbranched for half their total length and then branching into a fanshaped outline. Another type has a big almost round crown made up of 15 or 20 erect equal shoots from the main trunk. The cones which opened last autumn have not fallen, nor some one year older.

Priest Valley, Monterey Co.

2250 ft.

No. 2668. Yellow-fl. Currant, A thicket 4 ft. high. Ribes aureum var. gracillimum (~~tenuiflorum~~) See p. 113.

No. 2669. Smooth-fruited Gooseberry. Bush 3 ft. high. R. quercetorum Greene = Ribes leptanthum Gray

No. 2670. Prickly Gooseberry, 3 ft. high. Ribes californicum H. & A.

No. 2671. Amelanchier pallida. ~~Amfolia Nutt.~~ var. ~~subintegra Jepson.~~ Thicket 10 ft. high.

No. 2672. Berberis dictyota. 3 to 6 ft. h.

No. 2673. Ceanothus thicket. ~~divaricatus Nutt.~~ leucodermis Greene. Branchlets spiny. Bark white with a bloom or yellowish when the bloom disappears. 6 to 12 ft. high. Many-stemmed from the base and forming big clumps. One sheet pink-flowered! One sheet blue fl. White flowered bushes most common.

No. 2656. Cont. from p. 28. Called Poverty Grass by Mr. Lillis.

North Fork Lewis Creek (as to my numbers) is SE. Monterey Co. (cf. p. 5, footnote). c. 2600 ft.

May 11, 1907.

No. 2674. Salix ~~Sessilifolia~~ Hindsiana Benth. ~~Det. C. Sch.~~ Stems erect, slender, standing thickly. Each sheet is a separate lot. Stigmas 4, in pairs

No. 2675. ~~Composite~~ Luna pentachaeta Gray? Dry ground.

No. 2676 Trifolium. Stylocline filaginea Gray. Dry ground.

No. 2677. Phacelia albopurpureum T. & G. (douglasii Torr.) Fls. pale blue, lighter color in throat and veined, narrowly campanulate; 5 stamens unequal. Headwaters of Lewis Creek, N. fork, edge of meadow. Stems 12–20 cm. long.

No. 2678. Stylocline filaginea Gray. Composite. On "burn".

No. 2679. Gilia allophyllum divaricatum N. Fork Lewis. On "burn." ~~gilloides Greene var. ianthina.~~

No. 2679a. Edge of meadow. Phacelia, P. divaricata Gray. 5 brown spots at base of throat.

No. 2680. Eunanus (Mimulus fremontii (Benth) Gray. Det. A. L. G.) Fls. crimson, lobes scarcely unequal, folds on lower lip in throat yellow, edge of throat a deeper crimson, especially on upper side, or often with 5

Priest Valley = 2250 ft.

North Fork of Lewis Creek

(cf. p. 5 at bottom) Monterey Co.

Exclamation-like dots spreading from throat out onto each lobe in a short point. "Burns" N. Fork Lewis.

No. 2680a. Mimulus fremontii (Benth.) Gray. Det. A.L.G.

No. 2681. Viola Headwaters N. fork Lewis Creek. ~~purpurea Kell.~~ quercetorum B&Cl. 2600 ft.

No. 2682. Quercus wislizenii A. DC. 15 ft. h. scraggy. 2600 ft. N. Fork Lewis Creek.

No. 2683. Layia Priest Valley. gaillardioides (H. & A.) DC.

Rays ~~Petals~~ all yellow or rarely with whitish tips; adobe hillside

No. 2684. Phacelia. Black margin to calyx. Sandy valley flat, Priest Valley

No. 2685. Lupinus bicolor Lindl. ssp. microphyllus Priest Valley

No. 2686. Mimulus guttatus DC. Det. A.L.G. Langsdorfii Priest Valley

No. 2687. Platystemon Priest V. Californicus.

Petals mostly crimson outside on some plants, very striking. Petals on other plants white, with a small yellow spot towards base.

Waltham Creek = c. 1650 ft.

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No. 2688. Gilia. Linanthus androsaceus Waltham Creek, Fresno Co.

No. 2689. Composite. " "

No. 2690. Clarkia " "

C. modesta Jepson. Petals very acute. See p. 200.

No. 2691. Tropidocarpum gracile Hook. Waltham Creek.

No. 2692. Quercus dumosa. 8 in. diam. trunk, 15 ft. h. Fls. & stenle shoot. Cf. p. 42.

No. 2693. Orthocarpus. Meadowlet on n. fork Lewis Creek. Corolla whitish as a whole, the sac yellow with purple dots (few but rather large). Galea slightly longer than teeth. Sacs shallow. Bracts and calyx-lobes faint lilac-tipped = O. attenuatus Gray. c. 2800 ft.

– Quercus lobata in Priest Valley. Trees scattered or in very small clumps, not abundant. More common on the hill ridges from Waltham Creek than on Valley Floor. The

North Fork of Lewis Creek.

(cf. p. 5 at bottom). (Monterey Co.)

trees for the most part large and especially the trunks, the tops in many cases badly off for dry rot. The trees on the valley level may have been cut for firewood. I measured a tree by a barn on the north side Priest Valley, creek bank, which was 15 ft. 4 in. at 4 ft. and 80 ft. high. Another tree, a mile north, standing in the flat at mouth of the narrow valley of E. N. Fork of Lewis Creek where it opens onto Priest Valley, is 25 ft. 4 in. at 5 ft. and 33 ft. 4 in. at ground, 85 ft. h.

— Road incident. See p. 56b seq.

— Fraxinus dipetala Hook., never saw so much Mountain Ash as in these mountains. It is everywhere on north slopes in the chaparral and

May 11, 1907.

larger than I ever saw it elsewhere.

— Buckeye, just in bud, little of it. Hopping says the chestnuts are a powerful astringent, so powerful as to kill cattle that eat them in the "starvation years". Not poisonous, but simply binds the bowels up tight.

— Live Oaks: Quercus agrifolia, leaves fall all at once in March, branches crooked, Q. wislizenii, leaves fall all through the year, branches straight, acorns not always streaked, often small as a lead-pencil. — Ralph Hopping of Kawsah

— Adenostoma fasciculatum, on the "burn" at headwaters N. fork Lewis, coming up freely. Hopping says it cannot be fire-killed. Has seen an area burned, stumps sprout, and 2 yrs afterward burned again without injury.

Trail from Priest Valley along N.

(no. 2692)

- Quercus dumosa has shed quite all its old leaves and has only fresh new green ones. Hopping says this "dumosa" of Kawaah holds its old leaves.

- Alder, White. Hopping says it checks and especially warps badly when sawn into planks. "Before" colony days" they had a factory which cut it into broom handles, which warped so badly nothing could be done with them. In later days the "hall" at Kawaah was built from it. The floor stuff was nailed down at once and did very well, making a smooth floor because of the close even grain, but the rest of it as planks they could do nothing with. There is no Alder in this Coast Range country We have seen none from Coalinga

Fork Lewis Towards New Idria, May 12. 1907

to this spot. As a sign of water it is a surer sign than Cottonwood but as it is so universally absent from really dry country it is by no means so useful a sign as the Cottonwood, Populus Fremonti. This is abundant along streams through all this region. We have seen no Platanus racemosa at all. Nor any Black Oak, Maul Oak or Christmas Berry or Madrona.

- Yucca Whipplei is all through this country. Way down in Waltham Creek I looked up against the face of a tall mountain two miles away, and there was a clearly defined bright white flame like a burning torch. It was the Yucca in flower and scanning the mountain side closely I saw more.

(on N. Fork Lewis Creek) Monterey Co. easterly branch, trail to Hollister Road (the "Road" along San Benito River).

Camp at Meadowlet by mountain stream, on trail to New Idria (c. 2800 ft.)

No. 2694 Composite. " Microseris linearifolius

No. 2695 Krynitzkia = Cryptantha nemaclada (Greene) " "

No. 2696. Oenothera " "

No 2697. Ceanothus cuneatus, Seedling from "burn", abundant. The adults were fire-killed, completely. micrantha Hornem.

No. 2698. Quercus dumosa. fire-killed stump sprouts. Serrate leaves!

No. 2699. Quercus " " " .

No. 2700. Quercus " "

No 2701. Quercus " "

No. 2702. Quercus Wislizenii " " Each lot of above oaks from one bush.

No. 2703. Pentstemon. Lower lip longer than upper, of 3 broadly oblong obtuse lobes streaked with purple. Lobes purple inside, the deep whole corolla lilac outside. Throat with 2 mound-like gibbosities on lower lip at origin, one at each interval, the lobes also with a central hairy patch at their base. Style, upper fourth, densely hairy with yellow hairs on upper

P. palmeri Gray.

See p. 56c.

See Priest Valley Quadrangle. (c. 2800 ft.)

from Priest Valley, via San Benito River, May 12, 1907.

side, the hairs except at tip retrorsely the lower 3/4 of style with short spreading hairs. Filaments glabrous except upper pair which are hairy at base, upper pair of filaments thickened and yellowish at base. In chaparral.

- Fire-killed hill, sprouts =: Quercus No. 2698; Q. Douglasii + lobata when young; Q. Wislizenii.

No. 2704. Peucedanum. Branches reclining on ground at first, white fl., then becoming erect and lilac purple, then fruiting. P. dasycarpum T. & G. var. decorum G. Or are the branches unisexual?

No. 2705. Quercus chrysolepis, forma pendula Jepson. Bed of San Benito River. Leaves remarkably narrow.

No. 2706. Clarkia Breweri, Greene. Filaments clavate-dilated at apex or almost globose, anthers brick-red, conspicuously ciliate along lines of dehiscence. Sepals all

New Idria Road from Priest Val.

cohering in one piece and turned to one side in anthesis. Stigmas while expanding after anthers. Petals a most beautiful luminous pink. ℄ 50 in ft. On rotting shale.

Tree Cover of the Country.

From Priest Valley over the trail to the Hollister Road the cañon sides and swales wooded with Pinus Sabiniana, Quercus Douglasii & dumosa (#2692), Rhamnus californica, Ceanothus cuneatus & divaricatus. Valley Oak followed up the canon bottoms. Noted a few Quercus Wislizenii, Heteromeles arbutifolia, Fremontia Californica. Ridges and summits dense with Adenostoma fasciculatum, dense and low.

San Benito River

Coming up the cañon of the river

May 12, 1907.

towards New Idria, Quercus chrysolepis is common, trees up to 55 ft. h. Ceanothus divaricatus disappears wholly at the nooning place, at about 3900 ft. a few trees of Incense Cedar, mostly small, one 45 ft. high. Also a few hundred yards higher, two Pinus ponderosa 50 feet high. The Digger Pines run to the top of all the ridges I can see from here. In the canon they are disposed to be slender & tall, often not forked, if forked with strict branches. I note such 95 feet high. Here then is a slender state of the tree with no crowding. I should say 25% in this cañon do not spread at all. I noted also on the Hollister Road where we crossed it Valley Oak poles unbranched

Crossing of San Benito River, c. 2400 ft.

New Idria Road

San Carlos Range.

main axis 15 to 25 feet high and very long but narrow crown. This too does not spread, in youth even though standing alone. The Digger Pines crowns are very long and narrow and the higher up the cañon we go the fewer are branched

No. 2707. ~~Cardinus~~ Cirsium coulteri. 4 ft. tall + branching from base. Fls. pink.

No. 2708. Trifolium. Dry hillside. T. olivaceum var. griseum Jepson. Spreading.

No. 2709. Salix brewerii Bebb. Sub-alpine habit, in river bed;** the plants low-crouching along the water's edge, 1 to 2 ft. h.

No. 2710. Ceanothus cuneatus.* with larger shower flowers and apparently different from C. cuneatus which grows with it in this cañon.

* = C. cuneatus Nutt. (W.L.J. '13]

** = San Benito River.

San Benito Co.

May 12, 1907.

No. 2711. Astragalus Purshii Dougl.*. Fls. purple, sides banner turned abruptly back, a white spot in centre. Wings narrow, not enclosing keel but meeting over it, their tips turned backward while tip of keel is turned forward. Gravelly hillside. Prostrate.

* var. longilobus Jones. San Benito Peak.

- San Benito Cañon from the noon stop up has a very thin forest of:

Coulter Pine, trees 1/2 to 1 1/2 ft. diam. at butt, 30 to 60 ft. high. Cones often only 7 inches long. Begins to bear at 20 to 25 years.

Yellow Pine, 1/2 to 2 ft. diam. at butt, up to 80 or 100 ft. high. Most all of it logged. Fair reproduction but seed trees exceeding scarce.

Digger Pine. 1/2 to 1 1/2 ft. diam. up to 20 ft. h. Mixed everywhere up to night camp with the two

New Idria Road.

preceding species. Reproduction very good, better than either of the other two pines.

Incense Cedar, ½ to 2 ft. diam., up to 70 ft. high. Reproduction good.

All the above species associated.

At noon on the 12th Sunday we lunched at a bridge; passed a blacksmith shop and road workers station; about a mile beyond, the stream (San Benito River) divided into two forks, the eastern (the true San Benito) the larger, the other north in its trend. Roads follow both forks. The east road is blind, we take north road towards New Idria. At night we camped at the second forks, one east, one north. We follow north

May 12, 1907.

The night camp is at least 4000 feet, possibly 4300 or 4500 feet.

The trees spoken of above are about 12 to 20 to the acre where there is stand. Great areas on the summits and ridge slopes are as barren as one's hand, not even herbaceous vegetation. These characteristic spots are rotting sliding shale-like rock. The brush is Quercus bullata abundant, Ceanothus cuneatus next, Rhamnus Californica not common relatively, Arctostaphylos glauca and manzanita*. See p. 36a. This brush is rarely so dense that one cannot get through it readily. One can always pick open ways over any of these mountains. The trees have been logged clean for the mines, even the

San Carlos Range.

New Idria Road (summit of peak = 5248 ft.)

c. 4000 feet.

6 inch stuff taken for lagging

No. 2712. Yellow Pine (Pinus ponderosa Dougl.) See prev. p.

No. 2713. Coulter Pine (Pinus coulteri Don) " " "

No. 2714. Fritillaria (= F. lanceolata Pursh.) Fls. dull greenish white. Gland ovate-lanceolate, sharply defined, set a little below middle (viridia Kell.) San Benito Peak.

No. 2715 Fritillaria (atropurpurea Nutt.). Leaves glaucous, fleshy. Flowers broad + open, so much mottled as to be black, no obvious glands. Note the running offsets below ground. San Benito Peak

No. 2716 Viola (quecetorum B & Cl.) 2 forms, one glabrous, the other hairy. (See p. 56a.) San Benito Pk

No. 2717. Microsteris. Capitate on surface ground. (~~= Gilia~~ gracilis Hook.) Summit San Benito Peak c. 5000 ft.

- Linum Lewisii, near Idria
- Garrya Fremonti.
- Eriodictyon glutinosum, widely extended.

San Benito Co.

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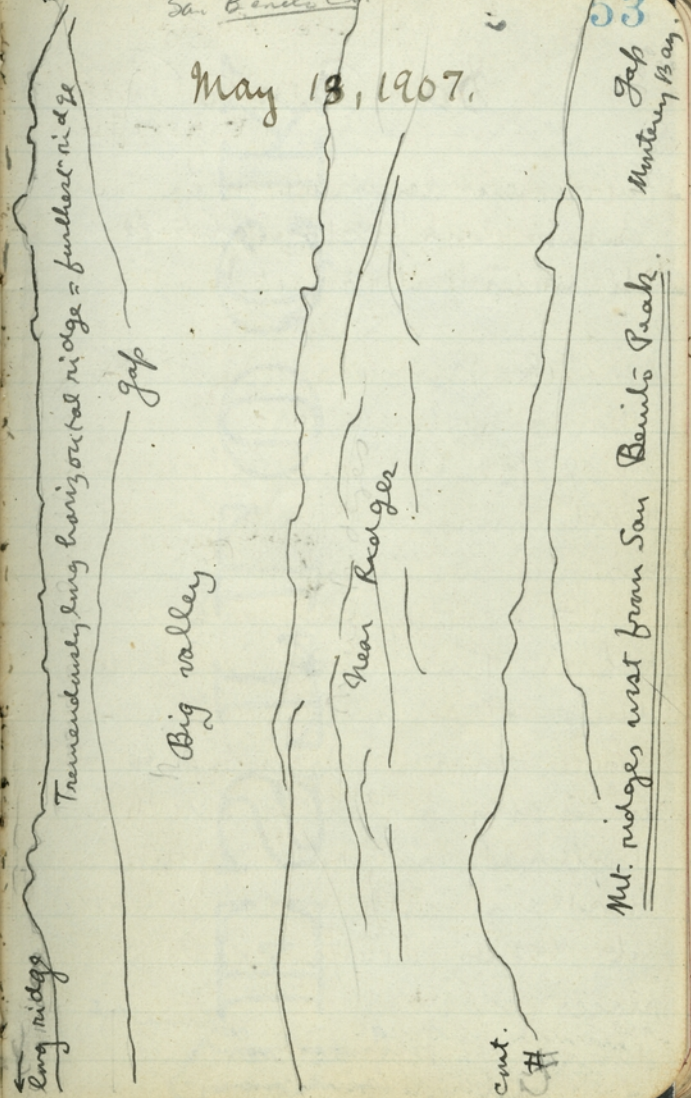

San Benito Peak

(San Benito Co.) c. 4500 ft

- Libocedrus decurrens, near San Benito Peak, stump, 5 ft. diameter at 3 feet!

No. 2718. Boschniakia strobilacea Gray. Near San Benito Pk.

No 2719. Quercus bullata, the most important individual in numbers in the shrub cover of the cañon slopes and ridges. This is far above Quercus dumosa (so-called) which occurs lower down. Quercus bullata is invariably higher in altitude I should say, rather than northern, altho at the north it comes down low in certain places.

No. 2720. Juniperus californica Wats. Male form? Idria Road Cañon high up.

(San Benito Co.).
Re. nos. 2725–2741 as to loc. cf. p. 58.

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San Benito Co., along San Carlos Creek, 3000 ft. down to 2000 ft. c.

No. 2721. Nemophila heterophylla F. & M. San Benito Cañon c. 2400 ft.

No. 2722. San Carlos Creek Cañon, Eriogonum inflatum. No! = E. indectum.

No. 2723. Linanthus dichotomus Bth. San Carlos Creek, Cañon

No. 2724. (discarded) Agoseris San Carlos (Fresno Co.)

No. 2725. Phacelia distans Bth. San Carlos Creek near Wildcat Oil Mine. As also # 2723.

No. 2726. Chaenactis. Rays pure white, disk pinkish. With # 2725.

No. 2727. Phacelia hispida Gray. Annual! " "

No. 2728. Layia. Pure white rays! " " rock

No. 2729. Oenothera gauraeflora T. & G. Fls. white, turning pink. Nos. 2725 to 2730 in sandy soil, San Carlos Creek. See p. 186 f.

No. 2730. Calochortus clavatus Wats. Pure brilliant lemon yellow. No. 2730 a = bruit.

No. 2731. Juniperus Californica Wats. Bushes 5 to 12 ft. high, 1/4 to 1 ft. diameter at butt. New Idria

No. 2732. Mentzelia affinis Greene. Fls. Yellow with 2730.

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(San Benito Co.)

San Carlos Creek

c. 2500 ft. Idria to Foothills.

No. 2733. San Carlos Creek. Lastarriaea chilensis

No. 2734. Allium peninsulare Lemmon. Sandy soil. San C. Creek.

No. 2735. Lupinus subvexus. The banner very long and erect, white. see p. 56a

Note the position of the wings over the fruit and the style in fruit. New var! at least.

No. 2736. Delphinum parryi Gray. Sandy soil.

No. 2737. ~~Azytheca~~ chorizanthe perfoliata. "

No. 2738. abronia. Purple! Lobes notched. Sandy soil. A. pogonanthe Heimerl

No. 2739. ~~Atriplex~~ monolepis nuttalliana Greene "

No. 2740. Lepidium dictyotum Gray

No. 2741. Caulanthus. Sandy soil. Purple fls. inflatus Watz.

No. 2742 = Bromus rubens L.

No 2743 ← Hordeum leporinum Link.

The two chief and practically the only grasses or plants on the great grassy plain between Mendota and mouth of San Carlos Creek. The no. 2743 = the more abundant. Hordeum murinum L. see p. 59.

San Carlos Creek.

(San Benito Co.) (cf. pp. 52-54)

[After striking the road] that is after coming up out of the San Benito bañon, we followed this road over San Benito Peak's shoulders and down to the village of New Idria. We did not stop at the village or the mine. The quicksilver mine here is famous. Its output has been exceeded by only 5 other older mines; the Idria and Monte Amiata in Italy, the Almaden in Spain, the Huan Cavellica in Peru, and the New Almaden near San Jose. This year its output was exceeded only by the two mines in Italy (1937). In the last half of 1937 it averaged 15,960 pounds per month. New Idria was discovered by a Mexican prospector in 1852 who was slain shortly afterward. Whereupon there was a wild scramble for the property — a series of events so exciting that Bret Harte wrote them into his "Story of a Mine". — The above (as to Idria) is abstracted from P. J. and E. Progress, vol. 15, no. 2 (Jan. 1938).

After leaving Idria we trailed down the road which

follows San Carlos Creek [canon] into the foothills and out onto the plain. According to the Panoche Quadrangle San Carlos Creek changes its name to Silver Creek which comes out into the Panoche. I assume that we followed down this creek. It was and is, apparently, the only way we could have gone; but the word Panoche does not occur in my notes; and in after years, when going through the Panoche I had no realization that this mouth of the Panoche was [that we] had passed through on our way to White's Bridge over the vast level of the plain, when coming down from New Idria and San Benito Peak. — Jan. 19, 1938.]

Cont. Lupinus densiflorus Bth. no. 2735.
Det. C. P. Smith.
Cont. Trifolium tridentatum Torr. ind.
Cont. no. 2757. [var. watsonii Jepson.]
– Cont. Viola purpurea Kell. no. 2716.
Also " " " var.
Separated as no. 14, 114, q.v.
– Cont. from p. 51. This could not well be A. marzanita according to our present knowledge of distribution. It may be A. parryana or A. pungens.

Cont. 2741. Streptanthus inflatus Greene.
Cont. 2735. Lupinus subvexus C. P. Sm.
– Gilia gilioides Greene var. xanthina Jepson & Hoover. Cont. from p. 37, no. 2679.
– Penstemon palmeri Gray var. grinnellii M. & J. Cont. from p. 45.

[North Fork Lewis Creek, San Benito Co. See p. 40 ante.]

— Somewhere up on North Fork Lewis Creek (cont. from p. 40 ante) we stopped at a settlement to inquire our way across the mountains. We were to work over a ridge that separates N. Fork Lewis Creek from San Benito River canon. At this settlement was a hall. There had been a dance there the night before and for the dancers a barbecue of beef had been prepared. In that cattle country they naturally selected a very fat steer. Quantities of this sliced beef, left over from the previous nights festivities, were on a bench in the hall. We found two men there. One a steady balanced fairly young farmer who talked to us sensibly and soberly. At heart he had a hospitable spirit and invited us as travelers to eat of the barbecue. The other chap was a little younger, was snippish or smart-aleck in his remarks and seemed to resent that we ate. But both of us ate of the good meat. It seemed to me I had never before in all my life tasted such rich fine-grained beef. Of course we were traveling horseback in the open air and had a good appetite; but I have had a good appetite on many other occasions without in the least remembering the food. — May 2, 1932.

May 13, 1907.

On upper Waltham Creek we had a most beautiful camp in a wooded valley, on a neck of land where two streams met. It was grassy and clean, and the wooded hills rose. Our next camp was even more delightful; a tiny grassy meadowlet with a musical brook in the mountains between Priest Valley (i.e. North Fork Lewis Creek) and the New Idria Road; it was alive with wild flowers; the oaks were in fresh leaf; and picturesque pointed rocks rose in wild array up the cañon. Our next camp on the headwaters of the San Benito at about 4000 ft. (east fork) was a good deal like Mineral King at 8000 ft. The next camp was in the weirdly dreary San Carlos foothills the extraordinary groups of gullied and wrinkled reddish-brown into

Hayes Ranch Plains
W. Fresno Co.

that made such a show from the summit of San Benito. Without water or springs, without trees or shrubs they are inexpressibly forlorn and yet with a rude fascination that is exerted upon the traveler. The plats of these foothills are sandy and on sandy benches I had the lot of plants numbered 2725 to 2741 unless otherwise designated. From these foothills we came out on to the plains. It seems an interminable journey over them. Level as a floor they stretch out in every direction. Being a little higher than the streams at the base of the foothills and higher than the river at Mendota they bix our horizon in a circle

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with the Sierra Nevada rising out of the gap below the horizon on the east and the Coast Ranges similarly on the west. [See p. 86. *] This plain is sandy. It is covered at this time with a dense growth of low grasses, 2742 & 2743, and scarcely any other species to be observed. Near were many flowers here probably. We passed an irrigated wheat ranch just beyond the mouth of San Carlos Creek Canon and another after 14 miles (Cheney Ranch). Then Mendota, where we passed the night. Came on over White's Bridge, a historical night station on the river with a white house like the Bennett Stage House at Vacaville, now abandoned, and then over the alkali plains which

Mendota, White's Bridge,
Fresno Co.

stretched out almost as interminably as the grassy plain. The vegetation here was a semi shrubby Atriplex (not in fl.) and Hemizonia pungens.

Nicotiana glauca. In the sandy wash of San Carlos Creek in the lowest foothills, where it is soon ready to open out onto the plains grows this species in quantity, forming quite a forest in the river flat, 15 feet high and with woody trunks sometimes six inches in diameter. It extends right out onto the plains, following the river bed. Also noticed along the stream beds on the plains before reaching Coalinga. It follows streams or gulches.

Centreville, May 15, 16, 1907.
500 ft. Fresno Co.

- Mendota we reached at nightfall. It looked good to see it rise up over the plain, but I never had any such feelings for it viewing it from a train window at the railway station. It is a hopelessly squalid little place. Idria up in the mountains is a mining town but very neat in appearance. It has been going since 1852! 250 men are employed. At many places around in the mountains within 2 or 3 miles they are developing other quicksilver mines.

Passed White's Bridge, an old time stage station (see above), then Fresno - a long journey to it. Through rich irrigated farming lands we go on to Centreville near Sanger, and stop over night. A cross roads hamlet.

Kings River Delta to Squaw Valley (Fresno Co.)

No. 2744. Brodiaea grandiflora Sm. Dry grassy lands on White's Bridge Road north of Collis.

No. 2745. Godetia bottae var. cylindrica Petals pale crimson, fading lilac-purple. Stigma purple. Capsule 8-ribbed. Centreville

No. 2746 Godetia Congdoni. Petals pale crimson, sprinkled with dots. Clark's Valley to Squaw Valley

No. 2747. ~~Godetia Williamsonii D. & H.~~ Clarkia veminea Clark's Valley to Squaw Valley, at a somewhat lower elevation than preceding.

No. 2748. Orthocarpus. Upper half of sacs yellow. Flower generally and bracts white or white-tipped. Near Squaw Valley.

No. 2749. Hordeum geniculatum Foxtail. Different from the ordinary " ", forming dense soft green low colonies in well-defined spots, Centreville. ~~Hordeum gussoneanum~~ Carl.

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- Squaw Valley's sloping level is magnificent with its wood of white oaks (Quercus Douglasii and lobata), the individuals of good size and filling the area so as to make a real wood, billowy with crowns.
- Nicotiana glauca not on east side of San Joaquin Valley at all, says Ralph Hopping.
- Platanus racemosa appears in canons soon after leaving plains but not seen on plains.
- W. G. Wright of San Bernardino (San Joaquin) spoken of by Hopping as a beetle-collector. Says he has a reputation for unreliability as to stations, having a desire to conceal new finds and so giving false data. Hopping suggests that his plant localities may be likewise open to suspicion.

Fresno Co.

c. 1750 ft. Squaw Valley to Dunlap.

Det. A.L.G.

Mimulus subsecundus var. viscidus (Cong.) Grant.

No. 2750 Eunanus. Corolla obviously 2-lipped, crimson with red-purple ring in throat which is interrupted on lower side by white bands marking the folds, one at each of the two intervals. Herbage clammy. Low. See p. 65.

No. 2751. Mimulus bolanderi var. brachydontus Grant. Det. A.L.G. Solid crimson.

No. 2752. ~~Gilia~~ Linanthus montana (greene). Mustang clover. Pure white limb, yellow throat, ~~limb~~ fading to a lilac tinge as if a blue flame had licked it, the yellow then surmounted by a ring of deeper indigo with 5 darker dots. A handsome thing, colonizing hillsides north slope in great abundance

No. 2753. Lilac limb, yellow throat. ~~Gilia~~ Linanthus filipes Btl. venusta

No. 2754. ~~Erythraea~~ Centaurium Deep pink corolla says Hopping. Red pink says I. Centreville.

May 17, 1907.

Below Squaw Valley the road crosses a fine mountain torrent, and passes along the edge of a conspicuous bald butte, and so on over rolling country wooded with fine specimens of Quercus Douglasii to the wayside station of Dunlap, postoffice, store, mountain hotel, and "booze place". We buy some eggs for our supper and camp a mile beyond at dusk. An Indian boy with gaily ornamented bow and arrow passes our camp. A good many Indians in this region.

[2750a. Mimulus kelloggii Curran. Det. A.L.G.

Dunlap to Millwood

c. 1915 ft. (Fresno Co.) 5100 ft.

- No Pinus Sabiniana to be seen at all.
- Hopping says blasting mountain roads kills Sugar Pine a few feet away. Young Sugar Pine is even killed by the jarring of wagons and stage-coaches where a tree stands only a few feet from the road in a curve. He says all road workmen recognize this fact.
- Cornus Nuttallii, in fl - Millwood.

No. 2755. Calochortus (=Covestae Purdy) luteus var. oculatus Wats. Pheasant's Eye White Calochortus. Dunlap.

No. 2756. Triteleia ixioides. Segments yellow above, black-banded beneath. Anthers subsessile in the fork of the filament, the forks of the shorter filament less spreading than the forks of the longer. Dunlap. [Brodiaea ixioides Wats.]

No. 2757. Trifolium (See p. 56a) Dunlap open hills.

No. 2758. Delphinium hauseni Greene. One sheet with stamens showing phyllody

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resembling lower petals, perhaps better petalody. Flowers pale lilac. Dunlap.

- The foothills at this altitude are beautiful just now. We camped on a little flat with swelling knolls divided by little swales studded all about with Blue Oak and Manzanita and carpeted with flowers.

No. 2759. Agoseris heterophylla. Dunlap. also next

No. 2760. Streptanthus coulteri (Wats.) Greene. 4 ft. h. Buds black purple. Petals white, black veined. On sliding shale.

No. 2761. Eschscholtzia hypecoides Bth. Annual. Yellow flowers with orange Eye. Dunlap. (see 2764)

No. 2762. Chaenactis. All white. Dunlap. (see 2764)

No. 2763. Leptosyne. Fls. yellow. Dunlap. (see 2764)

No. 2764. Fremontia californica. Exceedingly striking and handsome when the whole bush is covered with its profuse flowers, before much foliage develops. Dunlap to

Dunlap to Millwood

1915 ft. (Fresno Co.) 5100 ft.

to Millwood.

Nos. 2760 to 2763, above, should also read "Dunlap to Millwood". They were collected about half-way as the road runs, i.e. about 2500 ft.

No. 2765. Streptanthus diversifolius Wats. Petals at first pale lemon yellow, then becoming whitish and veined. Upper undivided leaves standing horizontally, strongly convex on upper side, so much so as to be hooded. This is markedly true of the subrhombic ones. With preceding.

No. 2766. Lupinus. Flowers crimson save banner which is bright yellow and fading ochre-brown. With preced. Stiversii Kell.

No. 2767. Sedum pumilum = Parvisedum, on outcropping rock. With preced. Bth.

No. 2768. Calochortus albus var. amoenus Purdy. Grassy spots with preced. Fls. crimson

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No. 2769. Nemophila pulchella Eastw. Flowers blue, blooming profusely and carpeting the ground under shrubs, forming wide beds here and there. With preced.

No. 2770. Ceanothus? ~~divaricatus Nutt.~~ leucodermis Greene. Bark white or on main stems becoming yellowish. Fls. white or very pale blue or lilac often, the shrub very striking when profusely loaded with flowers. With preced.

No. 2771. Quercus Breweri. 6 ft. h. "

No. 2772. Arabis sparsiflora ~~[illegible] Gray~~. Fls deep red. "

No. 2773. Cerasus. Millwood. 6 to 11 ft. high. Prunus emarginata (Hook). Walp.

No. 2774. Hemizonella. Rays 4. Diskflowers 1 or 2. Millwood. Lobes of disk-corolla ciliate.

No. 2775. Chinquapin. 3 ft. h. in clumps, with slender stems. General Grant Park, in pines, firs, big-trees, etc.

Millwood, Fresno Co.
Grant Park. 6500 ft.

- General Grant tree 107 ft. 4 inches at ground. 23 ft. diam. at 12 ft. It is a fenced tree. It spreads widely at the ground and is not especially tall.

The General Grant tree, says Hopping is not as large as the General Sherman in Sequoia Park which 103 feet around bots and 82 3/10 feet at 12 feet. It is 280 feet high. There is a Methusaleh Tree on Tule River which is very large. The largest tree is probably the dead Mother of the Forest at Calaveras. There are not many Big Trees in Grant Park; mainly they are in two clusters.

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- Big Tree. The "half-shot" man says: Big Trees run 250 to 300 feet high. The bark is soft while that of Coast Redwood is hard. I have a piece of bark 30 inches thick. There is a piece in the Chamber of Commerce at Fresno 50 inches thick. Yellow Pine is called Apple Pine here. It has a nice fragrance. I have seen small saw logs that had only a small heart. No, they don't cut out the sap. It all goes - except the bark. Some of it is very nice and soft and will take a good polish. It takes some mighty fine figuring to distinguish it from Sugar Pine. If there is any doubt at the sorting piles the men shove the piece into Sugar Pine. The nearer the cut is to the sap the

Millwood. 5100 ft.
Fresno Co.

more clear stuff there is, since a tree when small has limbs and there show as knots toward centre on base cuts. Yellow Pine runs 160 to 180 feet. White Fir is cut but is not sent out in any quantity being mostly used for sheets and cribbing. Trestles here will be on an average 25 feet high and 1/4 mile long. Sometimes they are 100 feet high. All this is built up with White Fir and Incense Cedar, as far as they can since they want to save the pine. The hardest pine I know is Oregon Pine or Douglas Fir. It is a fine timber.

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- Yellow Pine. Diam = 2 ft. 7 in.
211 years old. Heart = 48 years, 6 in!
- Sugar Pine. Diam. = 3 ft. 11 in at 1½ ft. 399 years old. Sap = 4 in.
at 100 years radius = 6 in.
" 200 years " = 1 ft. 3¼ in.
" 300 years " = 1 ft. 10 in.
" 399 years " = 2 ft. 3½ in.
- Yellow Pine. In note at top of page, add that the heart makes but a small volume of the trunk, about 1/7 of the wood volume.

- Sugar Pine, diam = 3 ft. 8 in.
Rings = 235. Sap = 5 in, rings = 60.
100 years was 8 in. radius
200 " " 1 ft. 8 in. "
235 " " 1 ft. 10½ "
Three feet above ground.

Millwood

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No	Diam	Height ab. ground	No. of rings	Radius of tree at given number of years. 100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	Sap thick	Sap rings
1	9'4"			0,8¾"	1'2¾"	2'0	2'8¾"	3'2"	3'10"																	

Converse Basin

Measurements of Sequoia gigantea

No. 1. Diam. = 9 ft. 4 in. at 8 ft. above ground
883 rings. Sap 3 in thick, 83 rings.
Radius at end of each 100 years as follows:

ft.	in.
0.	8 1/4
1,	2 3/4
2,	0
2,	8 1/4
3,	2
3,	10
4,	3 3/4
~~4,~~	~~8 3/4~~
5,	1 3/4
5,	4 3/4

No. 2. Diam. = 11 ft. 7 1/2 in. at 12 ft. ab. g.
Total 2017 rings. Sap = 3 in.
Radius at end of each 100 years as follows:

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ft.	in.	cnt.
0,	7 1/2	6, 8
1,	1	6, 10 3/4
1,	6 1/2	6, 11
2,	1	
2,	6 1/2	
2,	11	
3,	3	
3,	7 1/4	
3,	10 1/2	
4,	1 3/4	
4,	5	
4,	8 3/4	
5,	1/2	
5,	3 3/4	
5,	7 1/4	
5,	10 1/4	
6,	1 3/4	
6,	5 1/2	

Converse Basin 6500ft

No. 3. Diam. = 17 ft. 7 in. at 4 ft. ab. g.
Total rings = 1300. Sap, 5 1/4 in., 70 rings.
Radius at end of each 100 years as follows:

ft.	in.
0	11 1/2
1	9 1/4
2	6
3	2 1/4
3	9
4	3 3/4
4	10 1/4
5	4 1/4
5	9 1/2
6	2 1/2
6	8

No. 4. Diam. = at 7 ft. ab. g.
Total rings = 1095. Sap 53 rings, 5 in.
The radius at end of each 100 years was as follows:

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ft.	in.
0	8 1/2
1	8 3/4
2	6 3/4
3	4
4	2 1/2
4	10
5	1 1/2
5	8
6	3/4
6	6 3/4
7	1/4

No. 5. Diam. = 12 ft. 8 in. at 4 ft. ab. g.
Total rings = 928. Sap 76 rings, 4 in.
The radius at end of each 100 years was as follows.

ft.	in.	cont.		cont.	
1	0	3	11 1/4	6	2 3/4
2	1	4	6 1/4	6	4 1/2
2	8 1/2	5	4 3/4		
3	4	5	10 3/4		

Converse Basin

No. 6. Diam. = 7 ft. 5 in. at 4 ft. ab. g.
Total rings = 419. Sap 54 rings, 5½ in.
Radius at end of each 100 years as follows:

ft.	in.
1,	7
2,	6½
3,	¾
3,	5¼
3,	6½

No. 7. Diam. = 6 ft. at 3 ft. ab. g.
Total rings = 415. Sap 62 rings, 3½ in.

ft.	in.
1,	6½
2,	5¼
2,	11
3,	4¾
3,	6

No. 8. Diam. 8 ft. 6 in. at 3 ft. ab. g.
Total rings = 428 Sap 102 rings, 4 in.

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Radius at end of each 100 years as follows.

ft.	in.
1,	10½
2,	7
3,	0
3,	4
3,	5

No. 9. Diam. = 9 ft. at 3 ft. ab. g.
Total rings = 421. Sap 54 rings, 4 in.
Radius at end of each 100 years as follows.

ft.	in.
1,	1
2,	1¾
2,	10½
3,	4½
3,	6

No. 10. Diam. = 17 ft. 9 in. at 9 ft. ab. g.
Total rings = 1606. (Diam = longest diam.)

Converse Basin

Radius at end of each 100 years as follows –

ft.	in.
1,	2
2.	0
2,	6 1/2
2,	11 1/2
3,	4 1/2
3,	8 1/2
4,	3/4
4,	4 3/4
4,	9 1/2
cont.	
5,	1 3/4
5,	7 1/4
5,	11
6,	2
6,	5 1/4
6,	8 3/4
7.	0
0,	1/4

No. 11. Diam. = 15 ft. 4 in. at 10 ft. ab. g.
Total rings = 2177. Sap 99 rings, 5 in.
Radius at end of each 100 years as follows:

ft.	in	cont.
0,	5 1/2	1, 5 1/2
0,	9 1/2	1, 10 1/4
1,	1 1/2	2, 2 1/4

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Cont.	Cont.
2, 6	7, 1 1/2
2, 10 1/4	7.7
3, 1 3/4	8.0
3, 4 3/4	8.4
3, 8 1/2	
4, 1	
4, 4 1/2	
4, 8 1/2	
5, 1/2	
5, 6	
5, 11 1/2	
6, 4	
6, 8	

No. 12. Diam. = 19 ft. at 7 ft. ab. g.
Total rings: 1560
Radius at end of each 100 years as follows:

ft.	in.	cont.	Cont.
0	7 1/2	4, 0	6, 6 3/4
1.	7	4, 8 1/4	7, 3 3/4
2,	6 1/4	5, 3 3/4	8.0
3,	3 1/2	5, 11 1/2	

Converse Basin

Cont.
8, 4 3/4
8, 10
9, 3 1/4
9, 9 1/2
10, 1

No. 13. Diam. = 11 ft. 10 in. at 7 ft.
Total rings = 904. Sap rings 88, 3 in.
Radius at end of each 100 years as follows:

ft.	in.
0	7 1/2
2	3
3	2
3	10 1/4
4	4
4	8
5	0
5	5
5	9
6	1/4

Cont.
6, 3/8

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No. 14. Diam. = 5 ft. 2 in. at 5 ft. ab. g.
Total rings = 257.
Radius at end of each 100 yrs as follows:

ft.	in.
0	7 1/4
1	9 1/2
2	6

No. 15. Diam. = 6 ft. 8 in. at 6 ft. ab. g.
Total rings = 629. Sap 80 rings, 3 in.
Radius at end of each 100 years as follows:

ft.	in.
0	8 1/2
1	8 1/4
2	5
2	11 1/2
3	4
3	7 3/4
3	9

☞ For No. 16. see p. 99.

Converse Basin

Big Tree Groves in Sequoia Park
from north to south:

1. Dorst Creek Grove.
2. Giant Forest "
3. Castle Rock "
4. Mule Creek "
5. Lake Cañon "
6. Coffee Pot (Cañon) "
7. South Fork "

acc. Ralph Hoffping. He says that in years of good cone crops of the Firs the squirrels let the Big Tree Cones alone.

— Boulder Creek Grove
Converse Basin Groves
— Kings River Basin

*Cont from p. 59 *. We camped (at last) a noon camp in the middle of this plain and I was much struck by the Coast ranges rising from below the horizon.

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— Ranger Braun says Quercus lobata grows in Pierce Valley among the pines, which is at an altitude of 5000 feet, but look up on contour map. Pierce Valley is on Kaweah waters.

Converse Basin.

Logging of Big Tree has been exceedingly wasteful in past, more so than now. Huge logs broken into fragments in falling are left on the ground. Logs higher than my head with a slight check in them are left. It is appalling. Then too the waste of other timber. Cribbing 10 to 50 feet high will be built up out of logs crossed to carry a shoot or a road across

Converse Basin, 6500 ft.
Fresno Co.

a canon. Saw a shoot built up in this way by cribbing Sugar Pine and Yellow Pine logs. The free use of timber in this way is lavish. They never think of pulling this timber out and using it afterwards for shoots White Fir is employed mainly as it is inferior timber.

The reproduction throughout the milled district is good as it relates to Incense Cedar, Yellow Pine and White Fir. Noticed only 2 places where Big Tree was reproducing and saw only about 5 to 8 seedlings in each place.

The Boole Tree is 109 ft. 8 in. around low on slanting ground. It is 77 ft. around at 10 ft. (5 ft. above ground on upper side and 15 ft. above ground on lower side. It

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is a strikingly picturesque tree standing out against the gorge of Kings River and the high snow-capped mountains behind.

Millwood.

-The Flume train man says: Apple Pine is very fragrant. It looks a good deal like Sugar Pine and is hard to tell from Sugar Pine at times. Sugar Pine is a hard wood to handle. It must be sticked up so that the air can get to it as soon as it is brought in. If not it is very sure to sweat and discolor as you see there. That is spoiled for any purpose except painted stuff. They ship out a good deal Incense Cedar now. Use it for footing stuff because it does not rot. Hard to get good clear

Converse Basin 6500 ft.
Fresno Co.

wide boards out of it on account of the dry rot which affects it and makes pockets in it. Sugar Pine knots have a black ring around them; Yellow Pine knots haven't. White Fir is a tough wood but rots in a year when next to soil. Mountain Mahogany is a hard wood and takes a fine polish but it doesn't grow large enough. Live Oak is a tough wood. It costs a lot to mill big trees. They split badly when they fall. It is expensive preparing a bed for them to fall on, costing as high as $250.

No. 2779 a. Phlox speciosa Pursh ssp. occidentalis (Durand) Wherry
Millwood, Fresno Co.

May 21, 1907.

- The brake sticks of the brakemen on the logging train are made from Quercus chrysolepis wood here. One man calls it Spanish Oak and another Live Oak.

- No. 2776. Salix scouleriana Barr. Trees 15 ft. h, in Grant Park, near Millwood, along stream in forest of big-tree, yellow pine, etc.

- No. 2777. Abies concolor Lindl. & Gord. White Fir. With preced.
Hopping says White Fir leaves have a twist at base and Red Fir not.

- No. 2778. Arctostaphylos patula Greene. Bushes 4 or 5 ft. high and 6 or 8 ft. broad. With preced.

- No. 2779. Silene. Flowers pink-red. Chaparral. Millwood.

No. 2779 a.

No. 2780. Pedicularis semibarbata Gray. Millwood.

No. 2781. Eunanus mimulus bicolor Benth. Upper lip white, Lower lip yellow, brown-dotted on palate. Tube yellow. Corolla markedly 2-lipped. Shaly

Millwood, 5100 ft.
Fresno Co.

slide.

No. 2782. Ceanothus diversifolius Kell. Low thickety bush, 1 ~~to 2~~ ft. h, numerous branches from base, ascending or half-running.

No. 2783. Ribes amictum Greene. Spreading bush, 5 ft. high and 8 or 10 ft. broad, flowering profusely, even down the stems to the ground. Fls. 1 or 2 in a place. = R. roezlii Rgl. (!)

No. 2784. Viola. In pines. V. purpurea Kell.
Headwaters Lime Kiln Creek, Tulare Co.

No. 2785 Viola quercetorum Br. Cl. with preced. V. purpurea Kell.

No. 2786. Lathyrus. " "
Only a little of this in a place. = Vicia californica Greene.

No. 2787. Delphinium patens Benth. Fls. magenta. Lower petals very deeply cleft and with a

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lateral spur or tooth projecting around upper petals. Ranger's Cabin, Lime Kiln Creek, Tulare Co.

No. 2788. Ribes amictum Greene. with preced. = roezlii Rgl. (!)

No. 2789. Plectritis. " "

– From Millwood we trailed up to a Redwood Grove above the Lake. There is some reproduction. Thence across to headwaters of Lime Kiln Creek where then is a Big Tree grove practically connecting with foregoing. Some Big Tree reproduction in first grove mentioned, a good deal in second. Young trees 10 to 20 feet high, narrow pyramidal to almost spire-shaped, especially at top.

Limekiln Creek.

Tulare Co.

No. 2790. Nemophila aurita Lindl. Climbing 3 ft. h. The foliage leaves are horizontally spreading and when touched you notice how rigid they are. The bractlets of the calyx are reflexed in fl. but are rotately spreading in fruit. Corolla beautiful pale blue, with a narrow whitish zone at base. Scales semi-flabelliform, indigo, enclosing base of filaments. Ranger's Cabin.

No. 2791. Pinus ponderosa Dougl. aments in a cluster: 38, 23, 13.

No. 2792. Nemophila menziesii H. & A. Nemophila insignis Dougl. Pale but distinct blue fading to whitish at centre.

No. 2793. Tellima heterophylla H. & A. Petals cut or laciniate into

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several teeth. = Lithophragma bolanderi ~~scabrella~~ Gray. (californicus Benth.

No. 2794. Ranunculus Var. ~~orsusculus~~ Jeps. Petals five. Open woods of oak & pine. Petals occasionally more than 5.

No. 2795. Gilia tricolor. Lobes very pale blue or pinkish. Slightly different form. = Var. longipedicellata Greenm.

No. 2796. Composite

No. 2797. Eunanus. See p. 202c. Mimulus acutidens Greene Det: A. L. J.

No. 2798. Nemophila. Corolla very small, pale blue, campanulate. In rocks. See p. 146a.

No. 2799. Thalictrum fendleri Engelm. 4 ft. high.

No. 2800. Trifolium albopurpureum T. & G.

No. 2801. Caucalis microcarpa H. & A.

No. 2802. Brodiaea laxa. = Tritelia very pale, distinct form. Hopping says it is so everywhere in these mountains.

No. 2803. Lupinus bicolor Lindl. ssp. tridentatus

Tulare Co.

Limekiln Creek

(Whitestock Flat)
= Badger (Tulare Co.)

No. 2804. Trifolium albopurpureum Torr.
No. 2805. Plectritis.
No. 2806. Eriophyllum

—From headwaters of Lime Kiln Creek, divide from Millwood, we went down as far as Ranger's Cabin, following edge of Whitney National Forest, on the fire line, a clearing 30 feet wide, burned strip. Yellow Pine reproduction splendid in this section. I saw young stands 4 to 6 feet high standing as thickly and evenly as cornstalks. This country here at Ranger's Cabin is beautiful (my spelling went crooked

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then because listening, while writing, to the Ranger's talk. Frank Braun, a fine young fellow), with oak, Valley Oak and Douglas Oak, and some scattered pine, coming down from the pine belt.

This Southern Sierra Country is remarkable for its altitudinal ranges, the greatest for any North American trees. Black Cottonwood (Populus trichocarpa) is in Whitney Creek acc Frank Braun. and at Junction Meadow of the Kern River. White Alder (Alnus rhombifolia) is at Alder Creek, fork

Limekiln Creek
[Tulare Co.]

of the Middle Fork of Tule River. Between Moses and Magee (8000 feet); at first mile between Millwood and Converse Basin, near Cookhouse, 6339 ft; above ford in Marble Fork, upper at 7500 ft.

Buckeye is on upper Lime Kiln Creek, south west Comstock Mill (5500 feet); with Big Tree, south fork of Kaweah River, 2 miles above Cliffs Cave (4500 ft.); middle fork Tule River above Nelsmi Ranch; always on western slopes in the Sierra Nevada mountains, never invading the interior mountain

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valley of the Sierras even where the altitudes are favorable.

Quercus lobata in Pierce Valley, very large trees. For fir oaks in Grouse Valley, see back on p. 27.

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cont. from p. 85.

Sequoia gigantea

No. 16. Diam = 24 ft. at 5 ft. In direction at right angles = 24 ft. 5 in. A very symmetrical and perfect tree. Rings = 1346. Sap = 4 in, and 26 rings

The ~~diameter~~ radius at end of each 100 years was as follows:

ft.	in.	
1.	8	
2.	11	see next page.

Limekiln Creek, Tulare Co.

ft.	in.
4.	3
5,	1 3/4
5-,	11
7,	1
8,	1
8,	11
9,	9 1/4
10,	6 1/4

cont.

11,	1 3/4
11,	10 1/4
12,	10
13.	2

The above cont. from p. 83

The above tree was at the upper Comstock Mill. They chopped it on three sides, then sawed it on the fourth side and nearly in two before it fell. 84 ft. of the tree was taken and the remainder of the log left on the ground. The butt end of this log

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was 12 ft. 7 in. in diam. I am over 6 feet in height but could not reach anywhere near the top of it. It is sound and about two feet of it buried in the earth. This tree is a most splendid argument for the theory that Big Trees do not live to be over 2300 or 2400 years. This tree grew rapidly. It stood between two little creeks

– Frank Braun says he has measured Sugar Pine 13 ft. in diam.

Whipstock Flat

Badger [Tulare Co.].

-Brodiaea ixioides, very abundant here.

- Nemophila maculata, abundant.

- Collomia rosea, very common. = albus C. amoenus Greene.

- Fremontia, 12 ft. h.

- Snow-brush, spiny Ceanothus cordulatus forming low dense colonies 20 to 100 feet in diameter but consisting of very few plants. Buckbrush is C. divaricatus. Deerbrush is C. integerrimus H. & A.

- Cercocarpus parvifolius, 14 ft. high.
Fremontia californica, 16 " "
Arctostaphylos glauca*, 14 " "
Ceanothus divaricatus Nutt. 16 " "

* = A. viscida or A. mariposa.

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Frank Brann says: "Manzanita will die fire-killed or cut off when old even if cut off 4 ft. up. The wood does not burn readily until it gets started, then it is fierce. Al. Padstone has a poker of this wood that he has used all winter. Fremontia californica we call Slippery Elm; it is a sporting test to make pieces to fit the shoes, inside the bark down, and attempt to walk on a ballroom floor. We also call it Leatherwood. I have seen Manzanita 2 ft. through."

R. Hopping says 3 ft. Hart has a tree 4 ft. through.

Valley Oak will sprout when cut off leaving branch stumps but Hopping says he has left

only trunk and it did not sprout. Jack Oak* will occasionally sprout, all is not usually if old. [*= Q. douglasii.]

Ceanothus cuneatus is called Ironwood and Blue Brush, the latter name on account of the general hue of the shrub and not on account of the color of the flowers. I have seen it sprout where the roots were exposed by washing on a bank. I have seen Jack Oak (Quercus Douglasii) sprout in the same way. There is a case of that on Sheep Creek.

Ralph Hopping says: I grubbed up a Populus Fremonti by its roots cutting the roots

off 2 or 3 feet below ground. As I left the hole open I had the finest grove of cottonwoods you ever saw."

- Quercus lobata!-

From Whipstock Flat to Eshom I noticed again the tall slender forms of this species growing in the open which I have before noted on p. of this volume. I measured one tree which was 3 inches in diameter at the ground and 15 feet high. It was unbranched except for short secondary branches. Another similar tree 30 ft. h. was 10 inches in diameter at the ground and 9 inches at 1 ft. above the ground. These diameters represent the swollen butts. above the pole is only 2 to 4 inches in diameter.

Eshom Valley, Live Oak Pass, Sheep Creek, May 24, 1907
(3500 ft.) (all Tulare Co.)

No. 2807. Gilia (L. mariposanus Milliken.) Pure white
Eshom Valley. Linanthus serrulatus Greene.

No. 2808. Quercus lobata. Eshom Val.

Measurements of trees:

No. 1. 23 ft. circ. at 4 ft; 110 ft. h.
No. 2. 23 ft. " " " "; 55 " "
(broken top.)
No. 3. 20 ft. " " 4 ft; 65 ft. h.
No. 4. 23 ft. " " " "; 80 " "
No. 5. 28 ft. 7 in. at 2 ft., 34½ ft. at base, 28 ft. 3 in. at 7 ft.

The above trees were all past maturity and in most cases had lost their main branches or some of them. No. 5 is a tree one would scarcely notice passing through the valley and yet the inhabitants of the valley claim it that it is

the largest oak in the world, or at least in Tulare county said one naively, or the largest white oak said another! Its trunk is badly fire-hollowed on one side. Fire-hollowed trees, in spite of being fire hollowed, often measure to great size, usually surpassing perfect trunks of the species. The reason is probably that they grow out at the corners of the burn, really enlarging the cavity, as it were, and having a tendency to buttress the trunk to compensate for the weakness of the hollow, or rather caused by the hollow. All the oaks are not old, but are mainly either old or very young. The clusters of young trees are very fine, vase or

Sheep Creek to Kawsah

elm type, growing thickly and 40 ft. high. (For anecdote regarding the largest oak in Eshom Valley, see Men and Manners, vol. II, p. 254 (Jepson Private Journal).

From Eshom Valley we worked through the same sort of beautiful country as occurs about Whipstock Flat, oak-covered slopes, flowery, green, straggling pines — then we worked up into Live Oak Pass (Manzanita) down into a rough canon to an old cabin, took left up the hill to the divide to Sheep Creek and down Sheep Creek (Kawsah watershed) to North Fork Kawsah.

At Merington I met Walter Frye, the exceedingly capable Chief ranger of the Sequoia National Park and at this time of the

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year Acting Superintendent. He believes the blackish gum in Sequoia gigantea cones to be connected with their preservation and germinating power. When the cones open in Sept. and Oct., the rains begin to fall, moisten the gum which dissolves and forms an impervious covering like shellac which seals the seed against drying out. Eventually the seeds are in a moist place, the gum covering dissolves and the seed is ready to sprout. His experiments with coated and uncoated seeds in nursery beds bear out, thus far, his experiments.

Frye says he has counted Sequoia rings near Atwell's mill and has found trees over 4000 years

Kaweah

old – but he did not keep any record of his figures. At about 100 years the first ring of heartwood forms and at the same period the bark of youth changes to fibrous bark. Big Tree bark will not burn or very slowly. The trunks are thus wonderfully protected and it requires repeated burning to deaden wood and effect an entrance below bark.

The Elk in the Park were brought there last Oct. a year ago. The first consignment consisted of two bulls. Then came a lot of cows and bulls. We have about 18 head now, perhaps a few more as we do not know exactly how many calves have come. It was a problem whether they would do well in

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the Park – a great problem. They arrived in bad condition. Cut from head to toe, eyes gouged out, skinned and bruised, they resisted capture and rail transportation so violently. The screw worms, in spite of anti-septic treatment on release, got into the fresh cuts. As a result the Elk effected became morose and sullen, and it was necessary to capture them and re-treat the wounds. The question of feed was the most important point in relation to their welfare. When they were first released we noticed what shrubs they browsed: Leather wood (Fremontia Californica), Poison Oak (Rhus diversiloba), Deer Brush (Ceanothus integerrimus) As there is an abundance of these

Kawzah, May 24, 1907.

species we concluded that they would have plenty of feed. Of course at this time they are nibbling the tops off of oats, which grow in great plenty. They lose their horns in February and almost immediately the new horns begin to grow. If a buck be in poor constitution or the feed be low his horns will not grow well and to great size. We noticed this second season that the antlers are much stronger and better than the first season they were here. We now feel confident that the elk will propogate and do well. — Walter Frye.

Visalia, May 25,

- Came to Visalia by way of Exeter, and returned to Berkeley 2 days after.

- L. E. Hunt says: Muir at Willits says there is 700,000 cords standing Tan Oak bark. About 2 cords of wood to each cord bark; about 2500 feet and B.M. to each cord. Regard the latter figure as too high. Say 1500 feet B.M. on an average. They pay about Willits $5.-.0 per cord stumpage. Yield is 3 or 4 cords per acre, or 8 or 10 cords where the stand is above average.

- Cont. from p. 36. No. 2668. = Ribes aureum var. gracillimum Jepson.

Santa Cruz.

- Kron says of Tan Oak bark: Do not keep my bark over two years, usually not more than one. The leakage from rain, the damp and fog moisture causes more or less loss. If it were perfectly shedded in a dry place it could be kept longer. There is an optimum period when it is best to use it, that is when it will leech most perfectly. It will not leech well at all when it is green or half-dry, there is much loss. It will leech best just when it first becomes perfectly dry - say in January after its peeling. The peeling season lasts until August 1. The hot weather at this

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time makes good peeling, but a continuation of hot weather will shorten the peeling period, just as cold nights will shorten it.

- Pilkington says: Fire will bind the bark so it will not peel that season. Takes several seasons (Kron says 3) for it to be again peelable. Even then it may peel on one side and not on the other. If the peeling season is shortened by hot weather these trees will be the first to bind down.

There is in Watsonville 3 planted trees 30 years old: Redwood 65 ft. h., Big Tree 40 ft. h., Red Gum 150 ft. h. (Ask P. for address of owner).

Santa Cruz

- Big Creek district, says Irons, they have taken out 6000 cords Tanbark, 8000 more to take out.
- Saw Edward Lilly, once with the Big Creek power company. He says there is 15,000 cords of bark still in the Big Creek.

It is my feeling that Irons underestimates cordage in all this southern region for very definite business purposes. He is a consumer and not a producer merely.

Lilly says that formerly S.F. tanners would not accept sacked bark. There was no explicable reason for such action, as sacked bark contains the richest pieces, chips from the

June 19, 1907.

base of the tree. I can only conjecture that they may have been imposed upon by unscrupulous people who filled the sacks partly with refuse or stones to make a heavy wright. Still such sacks could easily have been rejected.

- Sequoia sempervirens. Counted the rings on a logged stump. — 463 years. Diameter = 5 ft. 11 1/8 inches. — Santa Cruz mts., Big Creek.

Big Creek woods
Santa Cruz Co.

Second-growth Tan Oak.

Tree No 1. Height = 52 feet
Diam. stump at cut = 7 in (at 1 ft. a.g.)
Thickness bark at cut = 1 1/4 in.
No. rings taken = 6
Weight = 145 pounds.
Diam. trunk (peeled) at end last rim = 4 in.
Thickness bark last rim = 1/4 in.
Age = 32 years.

Tree No 2. Height = 67 feet
Diam. trunk (peeled) at cut = 10 in. (1 1/2 ft. a.g.
Thickness bark at cut = 1 1/4 in.
No. rings taken = 6
Weight = 214 lbs
Thickness bark uppermost rim = 1/4 in.
Diam. trunk (peeled) end last rim = 6 in.
Age = 62 years.
This tree was evidently stump sprout but not from cutting.

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Tree No. 3. (Mate of No. 1). Height 50 ft.
Diam. wood, butt cut = 6 1/2 in (1 1/2 ft. a.g.)
Thickness bark = 1 1/2 in. (butt cut)
Age = 28 years
Weight = 143 pounds.
Diam. wood at end last rim = 4 in.
Thickness bark " " " = 1/4 in.
(Ages nos. 1 & 3 probably same, as they are sprouts from same stump)

Tree No. 4 Height = 60 feet.
Diam. wood butt cut = 9 in.
Thickness bark " " = 5/8 inch.
General " " = 1/4 inch.
Age = 31 years
No. rings taken = 7.
Diam wood at end last rim = 5 in.

Fire injured in a narrow line along one side trunk, thin bark covering the elongated, narrow wound.

Big Creek (Santa Cruz Mts.)

Tree No. 5. (One of cluster of 5 trees The five will yield nearly 4 times as much as the one cut, certainly 3 3/4 times as much.) Height = 62 feet
Weight = 241 pounds. Age 32.
Diam. wood at butt cut = 10 inches.
Thickness bark " " " = 1 1/2 inches
Diam. wood end last rim = 5 3/4 in.
Thickness bark " " " = 1/4 in.
No. rims taken = 6

☞ Nos. 6 to 11 in one cluster or circle

Tree No 6 Height = 55 feet
Age = 30 years.
Weight bark = 125 pounds.
Diam. wood butt cut = 7 in.
" " end last rim 4 1/2
Thickness bark butt cut = 1 1/2 in.
" " end last rim = 1/4 in.
No. rims taken = 5.

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Tree No 7. Height = 65 feet.
Diam wood butt cut = 9 in.
Thickness bark " " = 2 in.
Age = 32 years
Rims taken = 7
Weight bark = 243 lbs.
Diam. wood end last rim = 6 in.
Thickness bark end last rim = 1/4 in.

Tree no. 8. Height = 55 feet.
Diam. wood butt cut = 7 1/2 inches
Thickness bark " " = 1 1/4 "
Diam. wood end last rim = 5 1/4 in.
Thickness bark " " " = 1/4 in.
No. rims taken = 5
Weight bark = 120
Height = 55 feet
(Tree fire injured at base on one side)

Big Creek (Santa Cruz Mts.)

Tree No. 9. Height = 62 feet
Diam. wood butt cut = 8 in.
Thickness bark " " = 1¼ in.
Rims taken = 6
Diam. wood end last rim = 5½ in
Thickness bark " " " = ¼ in.
Weight = 158 lbs.

(Four rims averaged up; will in thickness)

Tree No. 10. Height = 62 feet.
Diam. wood butt cut = 7½ in.
Thickness bark " " = 1½ "
Weight bark = 160 lbs.
Rims taken = 6
Age = 31 years
Diam. wood end last rim = 5¼ in.
Thickness bark = ¼ in.

June 20, 1907.

Tree No. 11. Height = 60 feet.
Thickness bark butt cut = 2 in.
Diam. wood on " " = 8½ in
Age = 31 years.
Weight bark = 235 lbs.
Diam. wood end last rim = 6 in.
Thickness bark " " " = ¼ in.
Rims taken = 7
(Fourth rim = 1 inch thick.)
Nos. 6 & 11 in one circle, a little fire burned on the inside of the circle years ago, - a good place for litter to collect).

No. 12. (One of 9 poles, 6 large, 3 small.)
Height = 65 feet
Diam. wood butt cut = 10 in.
Thickness bark " " = 1½ in.
Weight bark = 303 lbs.
Diam. wood end last rim = 6½ in.
Thickness bark " " = ¼ in.
Age = 31 years.

Big Creek (Santa Cruz Mts.)

No. 13. Tree. Height = 70 feet.
Diam. wood butt cut = 9 1/2 in.
Thickness bark " " = 1 1/2 in.
Diam. wood end last rim = 6 in
Thickness bark " " " = 1/4 in.
Wright bark = 303 lbs. Rims = 7.

Tree No. 14. Height = 67 feet.
Diam. wood butt cut = 10 in
Thickness bark " " = 2 in
Diam. wood end last rim = 5 in.
Thickness bark " " " = 1/4 "
Wright bark = 321 lbs. Rims = 9.

Tree No. 15. Height = 68 feet
Thickness bark butt cutt = 1 1/4 in.
Diam. wood " " = 9 1/2 "
" " end last rim = 5 1/4 "
Thickness bark " " " = 1/4 "
Wright bark = 241 lbs. Rims = 9.

Tree No. 16. Height = 67 feet. Rims 8
Thickness bark butt cut = 1 1/4 in.
Diam. wood " " = 9 "
Wright = 208 lbs. Age = 30 years.
Diam. wood end last rim = 5 1/2 in
Thickness bark " " " = 1/4 in.

No 17. Height = 65. Wright bark = 147 lbs
Diam. wood butt cut = 8 1/2 in Rims = 8
Thickness bark " = 1 in
Diam wood end last rim = 5 in Age = 28 3/20
Thickness bark " " " = 1/5 "

June 20, 1907.

- The second growth Tan Oak in these woods consists of poles 50 to 60 feet high. An extraordinary number have a narrow dead or rotten fireburned line on one side of trunk for 5 or 10 feet which the trees are about covering over at this time.

What a scourge to California is fire, especially the fall fires. They not only destroy so much but spoil so much. They spoil our autumnal atmosphere, filling our valleys with smoke and haze. I have seen the valleys in the fall fill with smoke so that one could not see more than half a mile.

- Redwood 463 years old = Diam 5 feet, 11 1/8 inches.

Big Creek (Santa Cruz Mts).

– Torreya, bark black nearly, on adult trunks fissured into low narrow longitudinal ridges. Trees 105 feet h.
The trees stumps sprout.
– All coniferous trees have a normal maximum height. Until they get to this height they will replace the leader, if lost, by one or two shoots.
One sees Redwood, sometimes, with two axes from midway or ⅓ up.
I have seen a Big Tree with 2 giant arms like a Y, a very curious sight. Monterey and Bishop Pines lose or obscure their leader on reaching a certain height and become flat-topped. So may Yellow Pine but most conifers naturally retain a spire point

June 20, 1907.

– As always I am struck by the appalling amount of waste in forest-operation. Yet the operating may be economical from the standpoint of the producing company. Take tie-making as it is practiced. A tree is felled. After it is down the tie-makers find it is difficult to split and use only 1 or 2 eight-foot cuts. The butt cut of any redwood tree will, the chances are, be hard to split. If the trunk bark shows interlocking ridges, the wood will also be crooked grained the woodsmen say. More or less of the top is broken in fall. That is waste. There is limbage. More waste! The parings in shaping the ties. More still when one sees all this piled up as waste he thinks of how much good

Big Creek (Santa Cruz Mts.)

- it would be as firewood for the masses of S.F. and Oakland. The prohibitive items are labor and transportation. In the tie-making business here, the tie-makers get 14 cents apiece; the company pays 22 cents apiece for the haul to Davenport (10 miles about?) — the teams making the trip (round) in a little less than a day.
- Torreya californica — more common in this canon than I have seen it elsewhere. Ascending branches slender, drooping branchlets. The largest trees here will go to 105 feet in height and 1½ feet in diameter. Stump sprouts freely.

June 20, 1907.

- Tan Oak is commercially mature as to the bark when it is 60 years old, altho the bark is still better at 100 to 125 years.
- Torreya californica, a tree 85 feet high (including 9 feet dead top) is 7 feet 4 in. in circumference at 4 feet above ground.
- Myrica californica, 25 feet high.
- Ceanothus thyrsiflorus 25 feet high commonly.
- Douglas fir. Very good original stand. I see slender trees 175 ft. high. Oscar Ewalt, lake foreman, calls it Pine. In Mendocino, + Humboldt it is marketed as Mendocino and Humboldt Pine respectively. Flooded in the artificial lake it succumbs to water before Redwood. Storm, man, fire cannot kill Redwood but water will. The only way. Any number standing killed trees 150 feet high.

Santa Cruz Mts.

Big Creek, June 20, 1907.

- Gregory, woods foreman says: Virgin stand Tan Oak in Santa Cruz Mts will yield from 200 to 510 cords per 160 acres. The latter figure is seldom reached." I have cut 510 cords off my own claim. I peeled 450 off another. In these stands it runs about 4 trees to the cord though sometimes it takes 6 and even eight trees to the cord. I have peeled trees that yielded 2¼ cords. Such are very large trees. Trees that will yield ½ cord are not at all unusual.
- Populus trichocarpa, common along Pajaro River, west side Santa Cruz Mts.
- No Quercus lobata seen in any of the valleys.
- No Pinus ponderosa seen.

Sherwood, June 24, 1903.

(Mendocino Co.)

- Tan Oak, diam. 3 feet on stump = 167 years (160 years estimated.)
- Taxus brevifolia, at bark camp, 6 feet circumference at ground, the trunk not swollen below, 45 feet high.
- There is a good deal of Yew right along streams hereabouts.
- Tan Oak yield. Mr. Carey says the company's 320 acres will yield 2000 cords bark. Sherwoods who sold it said 3000 cords. He says 6 or 7 cords to acre on an average in this county. As high as 15 cords in spots. Crescent, the peeler, says 2½ cords to acre = good claim.
- Bald Mt., from this point can be seen more timber in one view than any other spot on earth. 600,000 acres Redwood embracing Mendocino County, the northern part of Sonoma County (Navarro Ridge), and southern Humboldt. A region of redwoods 320 feet high max. 23 feet diam max., and Tan Oaks 10 feet diameter.

Sherwood, Mendocino Co.

Virgin stand.

Tan Oak, No. 1. Age about 170 years

61
105
88
109
95
102
88
94
109
110
46
69
46
78
82
41
59
51
69
68
68

1638

Height = 104 feet:
80 feet peeled.

Diam butt = 3 feet at 3 ft. a.g.

Diam wood end last run = 9 in.

("Sometimes 15 or 20 such trees to acre, 200 on a 40-acre tract" – woodsmen.

Shady north hillside near bottom.

Weight first run = 254 lbs.

June 26, 1907.

Tan Oak No 2. Age about 190 years.

82	84	80	
124	60	70	Weight first run = 435 lbs.
136	98	67	Diam butt at 4 ft = 4 ft.
93	97	84	Badly fire-hollowed.
105		45	
97	70	83	89 feet peeled (peeled into top which is short limby and with broken top)
81			
97	57	49	
102	72	59	Height = 101 feet
91	59	65	at 48 feet = branch 2 feet 2 in. in diameter.
96	56	78	
63	73	2	
84	57	57	Waste bark on under side log = 60 lbs.
66	80	60	
78	80	61	Shady north hillside near bottom.
102	75	47	
61	73	60	
	64		
1558	1155	1042	Total weight bark = 3755.

Sherwood

Tan Oak No 3 Age = 125 years about
Height = 86 feet.

62	Diam. wood butt = 1½ ft. at 3 ft. a.g.
59	" wood end last rim = 10 in
75	45 feet peeled (12 rims)
62	
80	
73	Shady north hillside near bottom. Peeling mostly below limbs.
79	
70	
36	
596	= Wright bark

June 25, 1907.

Tan Oak No 4

67	75	Diam wood butt = 2 ft. 5 in
58	74	Height = 115 feet
67	60	Peeled 77 feet.
76	72	Top broken in fall.
105	65	
81	62	
83	72	
91	64	
79	74	Waste bark = 95 lbs.
111	91	Wright 1st rim = 373 "
110	117	
126	115	
121	90	
92	1031	
110		
73		Total wright = 2567 lbs.
86		
1536		

Sherwood

Tan Oak No 5. 67 1/3 feet high.

68
81
149 lbs bark total.

31 feet peeled

Diam. wood butt = 11 in at 1 1/3 ft. a.g.
" " end last rim = 8 in.

Age = 100 years
8 rims taken
Thin-barked tree. Bark at butt = 1/16 in
2d Rim = 1/2 "
6th Rim = 1/4 "

Tan Oak No. 6 Age = 100 years

114 124
84 108
91 71
126 100
98
85

Diam wood butt 1 ft 10 in
Height = 108 feet.
Diam wood end last rim = 9 1/2 in.
Thickness bark at end last rim = 3/8 in.
80 feet peeled.

Total weight bark = 1001 lbs.

June 25, 1907.

Tan Oak No 7. Age = 115 years.
79 feet peeled
109 feet high

116
73
43
46
68
72
90
83
105
99
81
870 lbs.

Bark 3/8 in thick upper rim.
Diam wood butt = 1 ft. 7 1/2 in.
" " end last rim = 7 in.

(Four trees this size will make a cord. On an average five of this diameter).

Bark good on this tree!

Sherwood

Tree No. 8. Age = 48 years
Height = 60 feet.
Pelled = 26½ feet.

67
78
71
216 Total weight.

Bark thickness butt = 1⅛ in
" " 3rd rim = ⅞ "
Holds its thickness well upwards.

This is a commercially mature tree. Near top of ridge.

Diam. wood butt = 9 in.
" " end last rim = 5½ in.

Tree No. 9. Age = 78 years.
Height = 109 feet.

115
109
98
93
99
86
600 lbs.

Diam wood butt 1 ft. 4 in at 3 ft. a.g.
Diam wood end last rim = 8 in.

Bark thin, averaging ½ in. from top cut down to within 3 rims of base.
Bark 1 inch thick in patches.

June 27, 1907.

- Tan Oak acid boiled down is used to dip hounds feet when running them to prevent soreness.
- Tan oak, one tree in 20 sound at butt. Hillsides. Worse than on ridges. A forest fire is at its best going up a hillslope. At summit ridge it is running high or going out. These hollow close up. Great quantities of acorns stored by squirrels have been found sealed up when trees were cut.
- Pinus ponderosa, of this region no good for fuel says Foster of the Northwestern Mill. Engineers says that the sticks throw into their engines simply char and wont burn. This an exaggeration on part engineers but shows fuel poor.

Sherwood.
Mendocino Co.

- Quercus Garryana, easy to recognize by its mossy trunks and branches with white bark and shining foliage. The white bark contrasts sharply with the parts mossy. Indians will not camp under trees on account of falling logs due to dry rot. Worst in cold weather, due doubtless to freezing of water in punk. Same objection to Valley Oak as a shade tree.
- Tan Oak, short peeling season. "Pine" and Redwood peel a month earlier and 2 months longer. Long continued hot season will close down bark season early. Cold nights will make bark stick. Cold weather will shut off season. North wind will (cont. p.141.

July, 1907.

For this trip I secured a camp boy by writing Miss May Lemon,* a former student of mine at Ephs. When he appeared I saw that he was an Indian lad. On the high ridges west of Marble Mt. it came on to storm. The lightning played about us and the terrified pack mules bolted into the chaparral and we had a hard and trying day's work. At the end of the day the back of the storm was broken and we got down into a hollow, put up a canvas shelter and made ourselves comfortable. The next morning I got up and went out to look for the animals. When I returned Jimmie Davis, the Indian boy was still sleeping. As he had had a very hard day yesterday I

* = Mrs. Carl Denny.

allowed him to sleep. When he awoke he looked around at us in a dazed sort of way, got up and went to see the animals in a manner quite different from his usual cheery way. I considered him an unusual find. He was always on the job. He did not have to be told to do everything. If the camp pail was empty off he goes to the spring to fill it. He is extremely good-natured. Now for a day he seems utterly changed. The next day it comes out. He felt that I must have it in for him because he did not get up early yesterday. As a boy he had had a hard life on the packtrains running into the gold mines on the Salmon. If he failed to be up first in the morning some one threw a stone at him and cursed. He thought that I in my way would have it in for him too in a different

way and was only waiting a chance to get even! When he found that he was mistaken he became his sunny self again. In the days that followed he told me of his life, that he had worked his way thru grammar school and now was on his way thru high school. He is janitor of the Baptist Church, for which he gets $10.00 per month which is just velvet. Finally he tells me that he is coming to the University. My surprise takes him aback. I ask him what he intends to do there. He says he is going to be a lawyer! I ask him about expenses. He says he will work his way! I point out to him that student jobs are scarce because of so many students on the ground already. He is a little discouraged but not much and promises that he will bring his first-years expenses with him.

[Sure enough a few years later Jimmie surprised me by appearing in Berkeley in August ready for a freshman! His first announcement to me was that he had his first-years expenses! He went thru and graduated. In the last year he held a scholarship secured by my representations in his behalf. Sampson, a New York literateur, was my companion on the Siskiyou trip. Jimmie asked what he did. I said he is a gentleman of leisure. Jimmie did not understand what that meant. In his world at Sawyer's Bar on the Salmon River there were just two classes of people, those who worked and those who didn't. If you worked you worked like blazes to earn a living; if you didn't work you were just a saloon loafer. And Sampson didn't look like a saloon loafer!]

June 27, 1907.

- Cont. from p. 140.

close down season, since the North wind checks all vegetation. Tan Oak is remarkably sensitive to weather changes. Bark shaved or tried as high as possible since the two lower rims (peel and the upper rims will sometimes) stick.

Yreka, July 1, 1907.

Left Berkeley yesterday afternoon at 3:40. Reached Montague this a.m. early. Saw nothing of the Capulets. Half-way here saw Quercus Oerstediana, low round trees on the hills, 20 feet high or less. Yreka is an old mining town. Its brick stores have the old-fashioned iron doors. There is some quaintness about the place. The little Episcopal Church has some attractive memorial windows. E.L. Greene preached here once. It was great fun to sit on the box seat of the Concord coach behind four rattling bays galloping out of the town to Fort Jones and Etna Mills. Arrived Etna Mills at 12.00 at night. On July 4 we are off and working up Shackleford Canon, a fine canon indeed.

Shackleford Cañon

Western Sisnigm Co., region of Marble Mt.

Trees and Shrubs of Shackelford Cañon.

- Pinus ponderosa, 35 % stand. also covers gravelly floors of Scott valley where stand is dense and reproduction splendid.
- Libocedrus decurrens, 35 % stand. Trees of first diameter.
- Douglas Fir, 20 % stand. (Saxifraga peltata)
- Sugar Pine, a little.
- Populus trichocarpa, along stream in meadows.
- Abies concolor, very abundant in upper part cañon, replacing Pinus ponderosa, 75 % stand.
- Pinus Murrayana, about meadows upper part of cañon.
- Acer macrophyllum, lower part cañon.
- Ceanothus integerrimus, blue and nearly white, each shrub alike.
- Ceanothus velutinus, not in fl. upper part cañon. Also Marble Mt.
- Populus tremuloides, 6 to 15 ft. h., forming thickets in the upper part of Shackelford cañon
- Alnus tenuifolia, forming thickets 7 to 12 feet high in lower part cañon.
- Cerasus emarginata, Sierra Cherry, forming 10 + 20 acre thickets on sharp high slopes about Marble Mt. Frostbitten badly this season.
- Alpine Hemlock, base of snow drifts about summits of Marble Mt. 70 ft. h. at outside, 3½ ft. diam. max. Tops very slender + pliable, never broken here as are the Red Firs.
- Pinus monticola, upper Shackleford Cañon. Large trees.
- Quercus Sadleriana, Marble Mt.

July 4, 1907.

No. 2809. Chaenactis, Scott Valley, stony creek bed.

No. 2810. Cercocarpus, suffruticescens Gray, betuloides, 10 ft. h., slender. See p. 146a. Lower Shackleford Cañon. 3 ft. h.

No. 2811. Rosa, gymnocarpa, Shackleford Cañon. See p. 146a.

No. 2812. Ribes. (Spreading) See p. 146a. bush 2 to 3 ft. h. Anthers lavendar, sepals purple, petals white.

No. 2813. Pinus Murrayana. Shackleford Cañon. Of small size here. Staminate cones in cluster = 17 to 31.

No. 2814. Ranunculus californicus Benth. var. [illegible] Strictly erect plants at edge of gravel-edged meadow. Petals 5, yellow.

No. 2815. Potentilla breweri Watz. Gravelly drift. Meadow. Petals yellow, broad, retuse or obcordate with obtuse sinus.

No. 2816. Spraguea umbellata. Sepals 2, orbicular with small central green spot. Petals 4, white. Sepals white. Stamens 3. Style one, undivided.

No. 2817. Oreobroma. Petals 7 to 10. white, strongly pink-veined along middle. Stamens 6 to 9, often but not always same no. as petals, united at base 1/4 their length. Great low broad rock, forming a perfect garden on it. Head of Shackelford Cañon. = (P. Cotyledon Howell.)

No. 2818. Streptanthus. Sepals yellowish, their tips pale yellow. Petals very narrow, dull pink with marked purple veins. On rocks, upper Shackelford. Cont. p. 146a.

No. 2819. Ribes. Petals yellow. Sepals dark velvety purple. Stems 2 or 3 feet long bush 1 foot high. Upper Shackelford. Seen near Marble in low almost mat-like colonies 7 feet across and circular. R. marshallii Greene.

6000 to 7000 ft.

Marble Mt.

Siskiyou Co

circa 7000 feet.

No. 2820. Tsuga Mertensiana, alpine. Bark dark, fissured into narrow plates more or less interlocking & checked transversely. Shackelford to Marble mt.

No. 2821. Ribes viscosissimum Pursh var. Sepals rotate, stamens and style not exserted. 3 ft. h. Fls. dull white. Head of Shackelford Creek.

No. 2822. Ribes sanguineum Pursh. Flowers brilliant red. Very handsome. Strikingly different from the Berkeley plant. Head of Shackelford Creek.

No. 2823 Hemizonella. Marble Mt. Rocky places. caerulea Wats.

No. 2824. Calochortus. Petals all over Rainy white, purplish below inside. 7000 feet latitude ± corpanulatum See p. 164.

No. 2825. ~~Lithophragma~~ Petals white, 5-lobed, laciniate at base of blade (folded at very base) See p. 146a.

No. 2826. Erythronium. Deep but bright lemon yellow. Flowers 1, rarely 2, in a place. Alpine rocky beds; showy. Marble Mt. grandiflorum var. ~~purpurascens~~ Wats. pallidum

No. 2827. Polemonium ~~pulcherrimum~~ Hook. Corolla delicate, lavendar, very fine color. Tube yellowish. Marble Mt. P. carneum. Gray.

No. 2828. Collinsia. Lower lip indigo blue. Marble Mt. C. torreyi Gray var. bicolor Newsom.

No. 2829. Cichoriaceous. Yellow fls. Marble Mt.

No. 2830. Allium. Fls. purple-lavendar. Rocky places. Marble Mt. A. falcifolium Hook. = A. var. dermisquamum Jeps.

No. 2831. Fritillaria. Dull greenish yellow with purple blotch inside. Pale red zone at base perianth = F. atropurpurea Nutt.

No. 2832. Gilia capitata. Marble Mt. Fls. pale blue. ~~Phlox~~ cf. Sims ssp. capitata

July 5, 1907.

No. 2833. . Marble Mt., "crater" edge. See p. 146a.

No. 2834. Arabis, ~~secunda Hook~~ Marble Mt. holboellii var. retrofracta

No. 2835. Cruciferous. Marble Mt. Leptocerella occidentalis Wats. lanceolata

No. 2836. Claytonia. Petals white, yellow spotlet at base of blade (limb), 5 or exceptionally 6, with 5 & 6 stamens respectively. One flower had 8 petals, 2 of them 2/3 united; stamens 6. Where snow had recently lain.

— Mt. Ash (Sorbus) low thicket showing effect of snow. sitchensis

— Abies magnifica. Whisky Camp., a tree 17 ft. at ground (circ.), 9 ft. 9 in. at 7 ft. (circ), 170 ft. h. All on ridge hills more or less swollen at base.

— No. 2837. Acer glabrum. Stamens 8, 8, 7, 10. Clusters all male, or mixed, or nearly all female (in one case 7 female and 1 male), 150 stems from base, forming a cluster 8 ft. high, the stems longer because declined at base from snow pressing down hill.

No. 2838. Sedum. Rocky margin Marble mt. crater. stenopetalum Pursh.

No. 2839. Senecio. allegheniensis Nutt. with preceding

No. 2840 Delphinium " " = D. menziesii DC.

No. 2841. Viola. Lake Marble Mt. See p. 146a. Greene " Fls. yellow.

No. 2842. Thlaspi glaucum var. hesperium white See p. 146a.

No. 2843. Polygonum Davisiae with preced.

No. 2844. D. ~~micranthum~~ Gentiana. senecia var. primata. Fls. white, fading pink. See p. 146a with preced. D. integrifolia Nutt. var.

No. 2845. Quercus Brewerii. Marble mt. See next page.

Highest pt. in Salmon Alps = 8190. I judge Marble Mt. from this fig.

6000 to 7000 ft.

Marble Mt.

circa 7000 ft.

Chaparral Shrubs, Marble Mt.

- Arctostaphylos (patula?)
- Ceanothus velutinus Dougl.
- Garrya Fremonti
- Quercus Sadleriana
- Quercus vaccinifolia
- Sorbus
- Berasus emarginata
- Salix sp.
- Quercus Brewri, this is like the spms. coll. by myself near Millwood. On old trunks the bark is fissured into loose thin broadish shreds.
- Tsuga Mertensiana (Pattoniana). I am much impressed with the slenderness of the tops and sometimes of the whole tree, 30 ft. h. and only about 2 feet in diameter.
- No. 2846. Eunanus. Corolla crimson with a purple spot at sinus between upper and lower lips. Each Ridges on palate yellow, purple dotted and margined with purple. M. coccineus Congdon. Det. A. Eastwood.
- Picea Breweriana. Two female cones in flower collected that had staminate flowers below. Cones hermaphrodite! Also noted a female cone and a staminate cone side by side. Spms taken
- Tsuga Mertensiana, at the head of all north cañons, just at divide, with a snow bank above them, is always a cluster of alpine Hemlocks - all the way to end in Cedar Basin valley.

- Cont. no. 2842. Thlaspi alpestre L.
- Cont. no. 2818. Streptanthus tortuosus (Kell.)
- Cont. no. 2644. Dentaria integrifolia var. californica Jepson.
- Cont. no. 2825. Tellima ocabrella Greene.
- Cont. no. 2833. Saxifraga fragarioides Greene.
- Cont. no. 2812. Ribes roezlii var. Cruentum Greene.
- Cont. no. 2867. Streptanthus tortuosus Kell. var. oblongus Jepson.
- Cont. no. 2811. Rosa gymnocarpa Nutt.
- Cont. no. 2810. Cercocarpus betuloides var. macrourus Jepson.
- Cont. no. 2841. Viola ~~bakeri Greene~~ ~~nuttallii~~ Pk. var. lingulata Piper.
- Cont. no. 2861. Phlox adsurgens Torr.
- Cont. no. 2798. Nemophila ~~heterophylla~~ parviflora Dougl. var. quercifolia Chandler
- Cont. no. 2860. Penstemon rattanii Gray var. minor Gray.
- Cont. no. 2846. Mimulus nanus H.&A.

Cont.

(No. 2914. Whipplea modesta Torr. See p. 177. This had a strange look but I refer it to modesta. – Cont. from p. 172 seq. While on this ride through the Redwoods (cf. p. 171 at bottom) I saw a white saprophyte that was probably Monotropa uniflora. Looking back upon it, it seems incredible that I did not take it, but I was utterly exhausted from the trip over the Siskiyou Mountains and could scarcely get down from the saddle without distinct effort. A real difficulty, too, lay in this, that I was at the rear of my mule-train, and if I had stopped my riding horse would at once become frantic and unmanageable in its desire to go on after the other animals. Where there is a place to tie the animal by the trailer rope, it does not matter. One let the horse plunge and fret until a plant is put in press. But one cannot rope a horse to a Redwood trunk. See p. 192

July 6, 1907. also 17, 183.

Description of Route. (See also p. 21 Supra)

(See Jimmie Davis in bk. 1-9-28)

No. 2847. Picea Brewriana. First found at head of stream running towards Klamath, first stream west of Marble Mountain. I had best describe the route followed: — at head of Shackelford we passed over a divide to Wobbley Creek (acc. men met on trail) It may merely have been a fork of Wobbley. We then bore to left. In about a mile or so, the trail forks. We keep to the upper trail following along the sides of the divide and in about 3 miles come in sight of Marble Mt. with its white masses rising irregularly. Marble Mt. is in the form of a huge crater or circular rim open to the north. The highest masses on the east side of the rim are the white landmark peaks. The masses on the west side are not so high and not white. We follow around the southerly rim of

{Alt. estimates on this and following pages, Siskiyou trip, conservative, too low rather than too high.

Marble Mt. to Cudahay Valley

circa 7000 feet.

(Spelled Cuddiby on Forest Service map.)

the crater, being within 10 feet of it by trail at one point, pass over a divide which runs into crater rim and separates one fork of Wooley from another, go down in the canon 1/4 of a mile to Whisky Camp Wk. (See p. 1868). work along northerly, next, following the westerly rim of the "crater". At one point we come very near the edge of it and have a fine view of the white Marble Peak across the chasm. Soon the trail forks, we follow up a short distance to the divide by the upper trail. This brings up to the watershed of a stream flowing n. to the Klamath. Believing this ~~stream~~ trail to be a cattle trail and not wishing to risk it, we cut straight down to the trunk trail and continue to follow along the divide, slipping from one side to the other of it. On the very next Klamath creek (next west of one spoken

July 6, 1907.

of above) we find the Brewer Spruce at the head of it. Its a cold place. One tree measured 10 ft. 10 in. circ. at 4 ft. and was 95 feet high. The bark is whitish, smoothish but scaling off in thickish scales of irregular shape but usually 1 to 4 inches long and half as wide; they leave shallowly concave scars. The branches are horizontal, especially in top and few. The branchlets hang down in considerable numbers, 1 or 2 feet long, straight down, giving a rather formal effect to the exceedingly thin top. This is the strangest character impressed upon my mind - the thinness of the top, the scantiness of the branches. I saw but a few trees - not more than half-a-dozen, but it was getting late and I stopped no longer than to study the tree itself. From a dwarf tree we secured flowers. The male cones are very short. The female cones are dark purple. The sides (towards the top) of the scales are turned back (erectly) in such a way that all the scales together form rhombroidal areas, the appressed bract with its finely toothed edge. They stand erect on the branch. The associated trees were Tsuga Mertensiana (Alpine Hemlock), Pinus monticola, Abies magnifica (at least this comes not more than but a short distance away). Soon we slipped back to the other side of the divide and in about 2 miles found two

Cudahay Valley

(Spelled Cuddihy on Klamath map, U. S. Forest Service). circa 6000 feet.

Brewer Spruce trees by trail, one of which was 10 ft. 5 in. circ. at 4 ft. Then we worked around the rocky shoulder of a mountain side (on the divide) and then slanted down this mountain side to Cudahay Valley, in doing which we passed through a great brush area as high as our heads on horseback. The trail was clear below, but above had grown over the trail so that I rarely saw more than two animals ahead. It was very interesting; composed of the following species.

Ceanothus velutinus, a great deal of this, leaves not varnished.

Cerasus emarginata, a great deal of this. Along the south slopes of the divide in places it forms pure thickets of 10 + 20 acres extent. Also noted Cerasus demissa in fl. but this less common.

Sorbus sitchensis, common but not abundant. Its bud scales (winter buds) brilliant red.

Alnus tenuifolia, common in wet places, forming extensive thickets. Stems ascending, 20 ft. h. and 4 in. diam. at base.

Arctostaphylos manzanita, close to patula, abundant.

(= my "Packer's Mt")

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acer glabrum, frequent. Have never before seen so much of this. Strictly a bush. Its leaves deep red in spots from a fungus.

amelanchier alnifolia, in fl.

Quercus vaccinifolia, Its numerous slender straightish branchlets form a sort of vaccinium-like top that is very pronounced and is its most marked characteristic. Low 1 to 3 feet high. Leaves small, entire, or larger, sometimes toothed.

No. 2848. Anemone deltoidea Hook. Sepals 5 or 4.
No. 2849. Arnica. Flowers yellow.
No. 2850. ~~Bryanthus~~ phyllodoce empetriformis " red (See p. 186a.)
No. 2851. Vaccinium nivicum " pink "
No. 2852. Anemone occidentalis Wats. Fls. white
No. 2853. Lathyrus. Fls. crimson, promptly fading blue. Cudahay Valley. L. nevadensis Wats.

(mt. top. rocky slope east of Cudahay Valley.)

Trees of the Region.

In all this region, from the upper Shackelford Cañon to Cudahay Valley and our day's journey beyond, the true Firs form the main part of the forest, probably 90% of the whole of it. I saw but very little of Pinus murrayana and in few places. Pinus monticola was rare, comparatively. The most abundant species on our trail next to the true firs (magnifica and concolor) is Tsuga Mertensiana. Along the divide, spoken of above, and about 2 miles west of the divide at head of Cudahay Valley

6000 down to 4000 ft.

Trail, Cudahay to the night camp on ridge overlooking Klamath.

(Spelled Cuddihy on Forest Service map).

I saw a few trees of Picea Brewerriana. They were less characteristic in habit than those first seen. Tsuga Mertensiana was still seen in its characteristic habitats at heads of north cañons, but in this high country was also found in the bottoms of south cañons. I noticed it reproducing abundantly in the bottom of a cold wet cañon valley. On the trail from Cudahay valley to our night camp, July 7, at the latter end of the journey we came down considerably and soon saw the "valley" of the Klamath below us. Along the ridges for a mile or so we passed through a pure brush area of Quercus Sadleriana. I noticed that the mules of our pack train liked the foliage and ate it greedily, preferring it to any other shrub.

Abies magnifica, bark dark brown, fissured into plates which maintain smooth surfaces. Bark dark red within, close-grained, uniform.

Abies ~~magnifica~~ concolor, bark drab, roughly fissured, the outer part loosely fibrous or spongy comparatively and whitish, the very inside red. A dead giant on trail measured 24 ft. circ. at 4 ft.

No. 2853a. Lewisia ~~Talinella~~ Rob. In sheet with 2854.

No. 2854. ~~Claytonia~~ Lewisia ~~Ligantus~~ rupicola Watson. Fls. white; stamens equal. Ridge above Cudahay valley

No. 2855. Silene campanulata Watson. Petals about 6-cleft into linear lobes which are 2-cleft at apex. Crest of petals consisting

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of elaborate several-toothed appendages. Petals bordered by membranaceous wing on each side of claw, developed above into broadish auricles. With preceding.

No. 2856. Lupinus. Fls. blue, centre banner whitish, ~~red~~ fading purple. With preceding. L. breweri Gray.

No. 2857. Picea Brewerriana. Trail west of Cudahay at ridge.

No. 2858. Lonicera conjugialis. Corolla livid purple inside, choked in throat with hairs. With 2856 as to locality.

No. 2859. Sarcodes sanguinea. With 2856.

- Tsuga Mertensiana (Pattoniana), cones restricted to very top. As they grow on the lateral branchlets and there hang, the cluster in top is conspicuous and very heavy usually.
- Pinus monticola, rather rare, cones 9 in. long. The cones in clusters distinguish from Sugar Pine which bears its cones singly.
- Quercus Sadleriana, abundant as a shade shrub in fir forests.

Cudahay Trail to Dutch Henry's on Klamath
(Spelled Cuddihy on Forest Service map.) 4000 down to 2500 feet?

Zone below Fir Zone on Klamath.

- Just below the night camp we strike a different zone. Douglas Fir comes in abundantly, Sugar Pine a little with it, Castanopsis chrysophylla abundant both in shrub form and as trees, a very little shrub-like Tan Oak, Ceanothus integrrimus common, Madrona noted, a little scattering small Black Oak hardly more than shrubs, a little Pinus ponderosa, Rubus nutkanus abundant, Cornus Nuttallii, Corylus Californica* As we range lower the Black Oak becomes large trees. On a ridge I see twenty Tan Oaks 1½ to 3 feet diam. at butt and 75 to 100 feet high. Trees of the best grade. Strangely I saw no more.

The trail now becomes open, passing through a fine forest of Douglas Fir and Yellow Pine. Higher up, the trail was everywhere blocked with fallen timber. The wreckage of the winter's storms was everywhere in evidence and we were constantly circling these windfalls. Above Cudahay, west, the trail was much blocked with snow and we had much snow, for this season, for ten miles.

Douglas Fir reproduction splendid on all these lower slopes.

Oregon Oak (Garryana) a little. Alnus rhombifolia on lower streams.

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* Corylus rostrata californica.

River, July 8. 1907

(Near Cottage Grove)

Along the Klamath River ^ (up)

- Cercis occidentalis. Vitis Californica. Both common
- Boschniakia strobilacea. I have never before seen so much of this. For several miles I noted it as common without especially looking for it.
- Poison Ivy (Rhus diversiloba) only along river. None higher up.
- Acer macrophyllum, common.
- Populus trichocarpa, river benches.
- Quercus chrysolepis, large trees, some 3 ft. diam.
- Umbellularia Californica.
- Fraxinus Oregana

☞ ¶. I have seen ~~on~~ this trip no Quercus lobata, no Aesculus Californica, no Quercus Douglasii, no Pinus Sabiniana. The latter is not even in the hot canon of the Klamath as might be antecedently expected. Be it noted however that Pinus ponderosa and Pseudotsuga taxifolia come straight down to the waters of the river here.

- This is the country of the Klamath Indians. It is truly a frontier country. There are not only no railroads but no roads. A wagon would be as strange a sight to the native inhabitants of these parts as a Pullman coach to our great grandfathers. Everywhere our train excited curiosity. White men, mahalies and Indian men were equally excited. Children ran to look and mothers held up rosy-cheeked small ones to see the strangers with their curious equipment go riding past through the woods. Even the U.S. Mail does not penetrate this country from Happy Camp to Somes Bar.

Klamath River

– In Camp on sand-beach of Klamath River.

The Klamath here is an imposing stream 250 yards wide. It does not look that to the untrained eye, but it does when one surveys its flood, studies its power, the sweep of its current, the mighty powers of the waters of its eddies sweeping steadily and irresistibly, yet without hurry, into its place and on, like the steady march of battalions. People, civilized, do not appreciate rivers. They cross them in Pullman coaches on steel bridges. How were we to cross this? No bridge, not even a ferry? Absolutely no place by which it can be forded. A "ford" means a place where canoes carry the travelers across and animals may swim

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with safety. An Indian managed the canoe. Some of the mules sensed danger and were persuaded into the water with difficulty. The smaller mules swam the current well, but one big mule fought to get back to land, his eyes aflame with fear, desperately for land and his life as he believed. The Indian pulled frantically at the oars but the current and the mule were too much for him and the mule regained the bank. It was then necessary, for the second trial to take the animal higher up stream and plunge him off at once into deep water. Headed for the middle of the stream, the Indian pulling on his oars, they were caught by the current and carried down some distance in making their way to the other side. The same fight happened with the bell-horse. This horse fought so hard

Klamath River, July 8, 1907

to regain the land that the boat was carried down stream dangerously near the rapids and the Indian was forced to let the animal go back to the shore they had left. A curiously tattooed and withered old dame looking near a century sat on the ground by her cabin and responded in the Klamath language to the queries of our Indian guide. Her gestures were the real thing. With an outstretched wave of the hand she continually motioned towards Cottage Grove to indicate that the men to take us across the river would be found there. Jimmie went for him and came down the opposite bank to get the boat. They had to pull the boat up through the rapids, in the edge of the river, opposite us. First our baggage was taken across and then the animals as told above.

Then we repacked and picked our way over the old placer diggings where Chinamen still work them. Cottage Grove consists of one 2-story cottage painted white and very neat to look at (as compared with the Indian cabins) where a patriarch rather dirty as are nearly all Squaw men lived with his Indian wife. A colony of Indians in cabins lived about. It is 23 miles by trail along the river to Happy Camp. We leave this trail in about a mile and strike up the mountain on the Crescent City trail* 70 miles to Crescent City, for which journey the pack trains take five days. * = Kelsey Trail

Crescent City Trail from Cottage Grove.

[= "Kelsey Trail" to Crescent City]

see p. 202d.

- Hypericum Scouleri, common on the river-benches.
- Tan Oak, ranging 500 to 1500 feet above river and forming about 10% total stand. In particular cañons 5 to 15% stand. Trees mostly small or medium sized, a few large trees. One noted 3½ ft. diam. and 80 ft. h. (on ridge).
- Quercus chrysolepis, rather common. A few large trees. One 12 ft. circ at 4 ft.
- Rhadrina, old leaves turn red and hang down by July 1. Adds to the color symphony.
- Tan Oak is here in competition with Douglas Fir, the strongest species of conifer in reproductiveness. Same everywhere that it is in competition with it. It holds its own well against the Fir which speaks well for its persistence and aggressiveness. Advantage in resistance to fire and in stump sprouting. Advantage of Fir in lightness of its numerous seeds and their viability. Black Oak on ridges holds its own well against D. Fir. Very beautiful mixed stand of the two species on ridge of Cottage Grove-Crest trail. Black Oak probably resists fire better than Douglas Fir but latter finally overtopsit.
- Azalea occidentalis, white fls. at spring. Nearly always at water. I have never seen them away from water. We were looking for water for noon halt. When I saw the Azales I said there would be water there. Sampson went to see and found a spring.

Klamath Range near → (i.e. south spur of Siskiyous west of Cottage Grove) = (s. ridge of the Siskiyous.)

Cottage Grove to Elbow Camp, Crescent City
Locally = "Kelsey Trail."

- Ceanothus velutinus, still abundant.
- Ceanothus integerrimus, common at higher alt.
- Amelanchier alnifolia, " "
- Arctostaphylos glauca,* one shrub noted (see p. 186a). near Klamath banks
- Pinus attenuata, from Elbow Camp half-way back to Cottage Grove, common. One tree had 2.1 circles and was 20 feet high; about 5 in. at butt. Another tree, fire-killed, 14 in. diam. at 3 ft., 45 feet high. Cones persisting within 10 ft. of base. Cones in top of tree not open. Heat not sufficient. Tree scarcely at all burned, just fire-killed.
- Ceanothus prostratus, common.
- The Crescent City trail from Cottage Grove follows up a ridge and as it gets higher climbs right over the peaks on the ridge, up & down. We pass through a beautiful woods of Douglas Fir and Black Oaks, that is to say, somewhat open. The Knob-cone Pine is rather common for there shoulders are hot and dry and we pass no water. The Knob-cone Pine continues until we enter White Fir (Concolor) with which it is associated; about 44 00 alt. acc. Mr. Sampson's barometer. — See p. 146a.

No. 2860. Pentstemon. Near Klamath River.
No. 2861. Phlox. 5 stamens unequal. Corolla pink white with a darker central zone. (See p. 146a.)
No. 2862. Streptanthus tortuosus var. oblongus. Corolla "bilabiate" in position parts, the long stamens standing out between spreading upper pair petals. Klamath River. See p. 146a.

Preston Peak. (See p. 201 infra). See p. 202d.

Trail. July 9, 1907. Siskiyou Co.

No. 2863. Clarkia (Godetia) amoena G. Don.
Sidalcea Color, some with, some without a central eye-spot of crimson.
No. 2864. Collinsia linearis Gray. Corolla white but a tint of lavender in it. Crests very prominent.
No. 2865. Pinus attenuata a common Knob-cone Pine seedlings presumably. Taken from near fire-killed trees.
No. 2866. Vaccinium 3 ft. h. sparifolium. Berries scarlet.
No. 2867. Sedum. Fls. white. S. obtusatum Gray.
- Pseudotsuga taxifolia, as to common names.
  - "Douglas Fir", name applies because bark is fir-like, ~~Cone~~ not fish-scaly; leaves fir-like.
  - "Douglas Spruce", name applies because of general drawn + character branchlets; and cones hanging.

- We continue up and down the Knobs and work right and left along the ridges. We are now high up and can see across the "valley" of the Klamath to Marble Mt. and the high ridges about it. Our attention is henceforth constantly engaged by the snowy fields of the Salmon Range which carries perpetual snow. By "Salmon Range" I mean the great dominating snowy range to the south, with definite peaks in it, and the greatest landmark anywhere southward, or elsewhere within in our vision. I asked Jimmie what the name of the range was. He said: "It lies above the south fork of the Salmon River." We camp on a prominent shoulder at a turn of the trail called "Elbow Camp." The next morning we keep on along the ridge up and down the knobs but mostly up heading for the main divide. Fire has been the great scourge of the country. The forest on the high ridges is thin and in areas entirely replaced by brush

Klamath Range near Preston Peak.

= S. ridge of the Siskiyous (See p. 201).

Pitcher Plant Creek = "Willis' Hole" of the Packers.

See p. 202d.

Cedar Camp = "Orion Patch" of the Packers.

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areas. This brush is mostly Ceanothus velutinus, Arctostaphylos manzanita, Cerasus emarginata, these three make up the body of the brush which is 6 to 9 feet high. Where it is lower Quercus vaccinifolia is abundant, also Q. Sadleriana and Amelanchier alnifolia. About two miles westerly from Elbow Camp the cañons north slum at their heads a few trees of Brewer Spruce. These cañons are a few miles south of Preston Peak the great landmark of the Siskiyous in the west.

No. 2868. Darlingtonia Californica Torr. Sepals 5, spreading away from petals which converge to the tips by their edges forming a crown over the essential parts. A little above the middle there is a constriction of the petal in such a way that contiguous petals form a hole or entrance, there being of course five such in a circle. Ovary narrow below, spreading upward to a broad circular summit with a central depression from which arises a short style capped by 5 rotately spreading stigmas. Stamens 15, equal, 1/3 length pistil. Flower pendulous on top its stalk, one to each plant. Petals dark purple, strongly parallel-veined below. Abundant in a cañon bottom* where we lunched at noon; about six miles west of Elbow Camp. In this cañon we also saw the following: —

No. 2869. Picea Brewerriana. Cords of foliage, also bark specimen taken. One tree 80 feet high, 3 ft. diameter at 4 ft. above ground.

No. 2870. Chamaecyparis Lawsoniana. Spec. taken with Picea Breweriana. Also more common in cañon at noon camp, 100 feet high and 1½ to 2 feet in diameter of trunk.

* Willis Hole

— On the ridge I noticed with Picea Breweriana a scrub Taxus (T. brevifolia). The altitude is pretty great for it. Castanopsis chrysophylla scrub is in the chaparral. It stump sprouts freely as observed in chaparral scrub. Arctostaphylos manzanita sprouts feebly when burnt var.(? A. manzanita). gregaria Heller.

No. 2871. Arenaria. On dry ridge. in rocks.

No. 2872. Taxus brevifolia. Scrub along ridge.

No. 2873. Prosopyletum tenax. Dry ridges.

No. 2874. Pentstemon. New species to me. Upper lip promptly fading brownish or dull. Corolla white with red-brown veins radiating from throat. Stems many from a stout branched less woody base. Dry ridges. See p. 202.

No. 2875. Kellogia galioides Torr. Dry ridges.

No. 2876. Pedicularis ? Dry ridges. Fls. white.

No. 2877. Perianth egg-yellow. Anthers blue. B. crocea Wats. Brodiaea. Dry ridges. Gaultheria ovatifolia

No. 2878. Ericaceous. Not before seen. Fls. white. Corolla 5-parted. In 2 fls., 2 lobes united 2/3 way up (teratological!). Stamens 10, anthers opening by terminal pores. Stems procumbent forming a close mat under Lawson Cypress

No. 2879. Liliaceous. Not before seen. Tofieldia glutinosa ssp. occidentalis Wats. at Cedar Camp.

— Cedar Camp. About 8 miles west of Elbow Camp, on open hillside below trail, one mile beyond Pitcher Plant stream*. Plenty of excellent feed and brine water. a fine camp site. Lawsons Cypress here large trees 100 feet high and over measured 4 feet 2 in. diam. at 4 ft. Bark at first shreddy in large thin layers from a smoothish surface, in age becomes broken into broad ridges with furrows between and more or less fibrous surface instead of the earlier corky smooth surface. * = Willis Hole.

Klamath Range near Preston Peak.

= S. ridge of the Siskiyous. (See p. 201).

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5000 to 6500 feet. See p. 202d.

Cedar Camp to "Divide", summit of → the Siskiyous. July 11, 1907.

= "Onion Patch" of the Packers

no. 2879a Senecio triangularis Hook.

- Picea Breweriana, west of Cedar Camp, saw more of this, in forest on south slope, one tree noted 100 feet high.
- Calachortus, no. 2824, = C. coerulens Wats. noted today, at least 6000 feet. Does any other species range so high?
- Rubus (Nut Kaynes); common in Douglas Fir forests and Fir forests, herbaceous; a little lower than 5000 or 6000 it shows a little woody.
- Pinus attenuata, 6 feet high, eight or nine years old, bore cones when five or six years old, as near as I can calculate the age. Safely the latter figure.
- From Cedar Camp we worked to the divide and left the waters of the Klamath and came on to the waters of South Fork of Smith River. All the way along the ~~dived~~ ridge leading to the divide I noted at intervals Picea Breweriana, even on the south side of the ridge. This ridge like the rest of the country has been terribly fire stricken and seems now very dry and arid. Yet snow has been off it but a short time for snow lies in patches here and there, still, on protected slope. So while it seems a very dry place for Brewer Spruce, they really have but a short season with the snow off the ground. Port Orford Cedar I note in moist places all the way to the ford of South Fork of Smith River. At the divide we have a grand view of the whole country. The broad gap in the mountains where the Klamath turns easterly to the great inner plateau basin shows plainly. The Salmon Range looms strongly from here and asserts its prominence as a mountain range over all other mountain masses in this region. After leaving the divide we came down rapidly, soon passing a cabin, Williams Cabin, and then zigzaging for keeps down, down, down. Passed on the dry shoulders the Pinus attenuata described on the previous page. All brush, brush, brush. We worked through it for miles, for it had overgrown the trail badly. On the abrupt slopes and shoulders it consisted of:-

Quercus Sadleriana. Quercus vaccinifolia
Arctostaphylos Manzanita. Castanopsis chrysophylla.

No. 2880. Montia parvifolia (mac.) Greene. Dry rocky places on ridge. Note the sterile rosettes. Petals pink. I judge the altitude 6500 feet. Between Cedar Camp and divide

No. 2881. Pentstemon menziesii. Corollas purple-blue. Very handsome. On divide. 6000 feet.

No. 2882. Silene grayii. On divide. 6000 feet.

No. 2883. Polygonum ~~polymorphum, alpinum~~ Phytolaccaefolium Meissn. Abundant. Sometimes filling the meadows. Swampy meadow just below divide. Noted as far back as Marble Mt.

No. 2884. Quercus Breweri, the genuine thing. Low shrub 2 or 3 feet high. On ridge west of divide.

No. 2885. Quercus vaccinifolia. Low spreading shrubs 4 to 6 feet or more broad and 1 ft. high. This is fairly typical as to foliage of all I have seen from Whiskey Camp and Marble Mt. No pollen-like fuzz on young leaves. On ridge west of divide.

No. 2886. Lilium, new tome. = L. bolanderi Wats. On dry rocky exposed chaparral ridge where grew shrubs listed at top of this page and also Pinus attenuata. (Lunch place). Petals livid purple, the segments below tips dotted. cf #2891

No. 2887. Quercus densiflora. Scrub form, on

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Ford of S. Fork of Smith River
"Upper Crossing" See p. 202 d.

mt. side half-way to ford S. Fork Smith River.
No. 2888. Phacelia Bolanderi. Corolla sky-blue and finely veined. Bench of S. Fork of Smith River.
No. 2889. Pinus attenuata. cones of the trees, 6 feet high, described on p. 164 & p. 165. Three year old cones.

– Acer glabrum, common in moist hollows from divide nearly to S. Fork Smith River. also frequently met with all the way to Marble Mt. I have never before seen so much.

– Tan Oak. Scrub form abundant from near Williams Cabin below Siskiyou divide to "Upper Crossing" In a few places there are trees 1 to 2 feet in diameter and 50 to 70 ft. h. but of slight importance because scattered. On the hill between Upper Crossing and Quartz Creek the Tan Oak stand is about the same in size and number of trees as at Sherwood or ~~a little~~ less of the largest sized trees. Trees 1 to 3 feet in diameter and 60 to 90 feet high. As I figure it along the divide in most places it will run 1 to 2 cords to the acre. On the main ridge one could see the appalling way in which fire denuded the Siskiyous west from the divide towards the coast as well as east. Great ridges were utterly barren or with small tongues or patches of timber here and there. There was every evidence as we went along that these brush-covered ridges once bore the stands of timber prevailing in whole or

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in part on neighboring slopes. I think I must have seen 125000 acres at the least that had been denuded. Even at one cord to the acre this would be 125000 cords whose value at this time laid down in the S. F. market would be 1½ million dollars. This would be sufficient to gained the whole Klamath Forest a long time. This is considering only a small part of the Klamath Forest and only one species of tree in it.

– Madrona – No tree in California takes so deep a hold upon the interest to those who know it as the madrona. It engages the attention without effort and always pleases by revealing new characteristics. We passed through groves of it today, the tall trunks craning high to the sky for light, yet never straight perfectly, like other broad-leaved trees in competition with conifers as Tan Oak.

– Aralia Californica. Hill between Upper Crossing and Quartz Creek.

– Douglas Fir, 19 ft 6 in circ. at ~~4½~~ 5 ft. Bark 8½ in. thick! With preced.

– Pinus attenuata. Good stand 2 to 20 feet h. on shoulders between Upper Crossing and Quartz Creek. First circle Cones borne within 2 to 4 feet of ground.

– At Quartz Creek I note the following:
Acer circinatum, 22 ft. h. + 2⅓ in diam at 1 ft. also another tree 30 ft. h. Common
Taxus brevifolia, 45 ft. h. Common.
Chamaecyparis Lamsoniana, 110 feet h.
Acer macrophyllum, 6 in. diam at 2 ft, and 70 feet high. Shade!
Oxalis Oregana. See next page

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Quartz Creek, Jones Creek (Big Flat) (night camp).

Cont. from preced page. See p. 202 d.
Vaccinium ovatum
Goats beard

-Tan Oak, from Quartz Creek we climb over a mountain and drop straight down to Jones Creek. There is Tan Oak along all the ridges that we follow. It thins out and disappears on the steepest canon sides dominated by Douglas Fir. Madrona is with it on all the ridges and little flats or benches on the mountain sides. On some north canon walls I see streaks of Tan Oak up and down the mountain side. It is more unevenly distributed here than in any other place that I have seen it. In some places on the ridges I saw spots of two acres that will peel 15 cords. The stand is tall, 70 to 100 feet high, and 1 to 3 feet diameter, straight clean limp trunks for the most part. Taking the backbone of the ridges generally I suppose a cord an acre would be a good high average. As said it is exceedingly spotty but sufficient to be of ~~no~~ great commercial value, altho too inaccessible now to be of any importance. Nearly all of it is badly damaged in the trunks by fire hollows at base. I never saw trees of Tan Oak more generally or badly damaged.

Madrona - In sylvan beauty the North Coast Range woods of Madrona, Tan Oak, Douglas Fir and Black Oak are the most beautiful woods of California, and this is chiefly owing to the Madrona. These mixed woods of which I speak are fairly open, never dominated by one emperous species, so as to

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be gloomy, but they have a lightness, diversity and color which appeals with the liveliest effect to the imagination and gives a satisfying pleasure to the senses. These woods are more beautiful than the Sierran woods, the best and finest example of which is the Giant Forest, altho that is grander, more impressive and has a more magnificent setting of mountains, snow peaks and abysmal gorges.

Tan Oak - Has had a hard time in this county. It is stumps sprouting freely, but one see that it has been burned twice in very recent years. Ceanothus velutinus grows with great rankness. It is still a bush-like or shrub-like but individuals have the stature of trees, 16 feet high and with distinct long trunks because so crowded and so high. The dead fire-killed limbs sticking over and into trail made the descent of this hill (down to Jones Creek) one of the worst I ever followed. One had to bend his head below his saddle horn and then was never sure that something worse wasn't coming to jab his eyes if he raised his head.

- Douglas Fir - Mutilation - Saw three treated over stumps 10 in to 1½ ft. diam. in trail from Klamath to Crescent City.

- Chamaecyparis Lawsoniana - along Quartz Creek, one trees 150 feet high. The gorge very deep and narrow and all the trees carried up, tall and slender.

- Jones Creek, Big Flat - Indian half-breed settlement. Night camp.

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Big Flat, River Trail*, Red Hill, Bald Mt., Crescent
[* = S. Fork Smith R.] See p. 202d.

No. 2890. Picea Breweriana. Near summit of Siskiyous, Cottage grove - Crescent Trail.
No. 2891. Lilium bolanderi wats. High dry ridges in chaparral, Williams Cabin to upper crossing, S. Fork Smith River, about half-way. Also noted nearly to Big Flat. (Same as no. 2886 I think. Do not find " — Oct. 12
No. 2892. Allotropa virgata T. & G. Quartz Creek to Jones Creek. Douglas Fir woods.
No. 2893. Ribes fracteosum Dougl. Stream bank, Quartz Creek. 6 ft. h. Fruit with a strong but rather pleasant cinnamon odor. See p. 173.
No. 2894. Lilium. 5 feet high. Quartz Creek to Jones Creek. Petals salmon to dull red, spotted half-way. L. occidentale Purdy.
No. 2895. Berberis. 5 ft. h. Big Flat.
No. 2896. Leguminous shrub 6 ft h. along a settlers fence as a sort of hedge plant. Big Flat. Cytisus scoparius Link.
No. 2897. Quercus. Big Flat. From different shrubs, but from one spot and indubitably one species. Q. Garryana.
No. 2898. Senecio. River trail, Big Flat to Red Hill.
No. 2899. Coptis venosa. " " " " " "
No. 2900. Veratrum insolitum Jeps. Petals white, fimbriate edged. Upper half of fils. rotately spreading with declined anthers, eventually becoming erect as dehiscence proceeds. Red Hill. = V. insolitum n. sp. See p. 179
No. 2901. Potentilla. Sts. 10, the longer 5 with muchly dilated fils., the other 5 very short, with bubly dilated fils. Red Hill. Summit: Petals broadly

City, July 13, 1907.

cuneate obcordate, pinkish white. P. sericata Greene.

- From Big Flat to the Redwoods little Tan Oak. Whole country badly burned. Ranges stretch off that one wholly denuded. Red Hill east and north and on summit shows vestiges of former forest. The Tan oak sprouts have been twice killed recently and now form low scrub. The dead sprouts 6 ft. h., the new sprouts spreading, mainly 1 to 3 feet high and forming a low cover. Douglas Fir and Yellow Pine here.

I never before saw so extensive a stand of Pinus attenuata as on Red Hill. It formed a forest of several hundred acres, the trees 4 to 14 feet high and standing in the denser parts of the area as thickly as stalks in a cornfield. This dense area stretched down the north slope and I could not see all of it from the trail. If fire helps any pine it helps this to extend its area.

- Douglas Fir - stump at Big Flat, 2½ feet diam., healed over
- Below Bald Mt. a short distance we entered the redwoods and rode through them for about six miles. A dense primitive forest of magnificent trees. Never before saw so many old giants going to their death but the younger stand was ample. This is a rain forest, the only forest in California that simulates a tropical forest. A dea

Del Norte Co. Del Norte Co.

Red Hill to Crescent City.

See p. 202d.

fallen monarch would have its great root mass covered with ferns, a beautiful sight. A fallen log carries a miniature forest of seedling Douglas Fir, Vaccinium ovatum, and herbaceous plants (cf. p. 146 & ante). A hemlock tree 40 feet high or more is growing on a Redwood stump 40 feet high and has succeeded in getting its roots to the ground which make a great sight on the Redwood stump. In the lower part of the forest Sitka Spruce comes in. Huge trees with enormously buttressed roots; the bark checks off in large scales. Hemlock is as tall as the Redwood; bark Coast smoothish, only ~~finely~~ superficially fissured. (Monotropa uniflora? cf. p. 199.) Vine Maple is but a shrub but is tall as is everything for light competition. Above Jones Creek we rode for miles through and often

July 13, 1907.

under Ceanothus velutinus. (So here Ribes no. 2893 is 15 ft. h. I question this as I took no spms.)

No. 2902. Chlorogalum = Schoenolirion album. Dur. Red Hill. Petals soon reflexed and the membranaceous margin involute curling along the green midrib. Style obscurely notched. Red Hill.

No. 2903. Rhamnus californica occidentalis (Howell) CBWolf. Red Hill. 6 feet high spreading bush.

No. 2904. Silene on Red Hill. Fls. bright red. Gravelly opens californica. Dur.

– At several camps on the trail we made a tea for dinner by steeping Yerba Buena foliage. It was rather pleasant, and quite warming.

– Jimmie says Incense Cedar posts are favored in his country on the Salmon. When you ask a man how long they will last they say a life time. I have know Redwood posts in the Sacramento Valley to last 50 years. Of course the life depends on the moistness of the locality. Sequoia gigantea logs down in the forest last far longer than Sequoia Sempervirens logs.

– Crescent City is a typical coast sawmill town. Its streets and building have for the most part the characteristic rawness altho it is an old place. Hobbs, Wall & Co. are the main people here. They own the big sawmill and have a general store in the town. The population is largely "square-heads" as to the foreign part of it. There is an Indian colony. Once again I am impressed with the waste pile fire that burns at

Crescent City

the mill, burning night and day, week-days and Sundays, year in and year out, unceasingly eating up good wood that people in the cities are in want for.

—I went to the office of L. F. Cooper. He is a lawyer and also interested in timber and mines. His office is large and he has a rear office of large proportions. Both were suitable libraries of law and a not negligible quantity of general literature, including the latest current books. Besides both places were full of interesting things. The front office had glass cases containing minerals. A table top made of burly redwood, of oval outline interested me at once. I did not get much information from him about Tan Oak.

—Phil Stevens is the Forest Ranger at Big Flat. C. E. Shillingford is a Fire Warden and wants to be a Forest Ranger.

- The town to the north west is backed by a grove of Sitka Spruce which protects it from the most steadily prevailing winds. The winds blow three days, attaining the maximum velocity on the second day, after that the fog comes. I noticed a small grove on the flat southeast of the town. At a distance it looked quite like the Bish op Pine on the Mendocino Coast. I made a trip to be sure. They were Beach Pines (Pinus contorta), 20 to 30 feet high, rough barked. They certainly simulated in the

July 14, 1907.

coloring, the aspect of Bishop Pine. They also associate with Sitka Spruce on the flats.

- The Redwood Forest here is not pure. Sitka Spruce is abundant on the western part of it. The trees with trunks 2 to 8 feet through at 6 ft and 175 feet high. They are remarkably buttressed at base, being nearly twice the diam. at base. Abies grandis is also in this part of belt; trees 1 to 4 ft. trunk diam and 150 feet high. Also noted in middle of belt. Coast Hemlock is, mostly 1 to 2 feet diameter and 175 feet high. It is throughout main stand of belt. As illustrating the tropical character of forest: on a Redwood stump 45 feet high is a Hemlock tree growing which is 50 feet high and sends its roots down the sides of the Redwood clasping the supporting stump like long slender fingers of a grasping hand.

- Rhododendron occid. 14 ft. h., often simulating a small tree with distinct long trunk & crown. - Smith River forest.

- Vaccinium ovatum, 12 ft. h., Smith R. forest.

- From the South Fork Hotel to Adams Station there is some Tan Oak scattered through the forest all the way. It is 1 ft. trunk diam. and 50 to 70 feet high. I saw only one patch where the trees were 2 ft. diam. Redwood, very thin, to ends about half way to Adams Station. Adams Station is on the main Smith River just below the forks (Middle and North Fork).

Fork

Del Norte Co.

Crescent City to Adams Station.

July 15, 1907.

Table of Distances.

	miles
- Adams Station to Gasquet (See p. 202a)	= 1
- Gasquet to Waldo	= 37
- Adams Station to Crescent City	= 17
" " " Grants Pass	= 78
" " " Eureka	= 119
" " " Port Orford	= 117
" " " Monumental	= 22

Shelley Creek is this side of Monumental a short distance. Three miles beyond Monumental is the Oregon line. The line is near the "Summit" where there is feed and water.

- Adams Station to Patrick Creek = 15 mi.

No. 2905. Picea Sitchensis. Near Crescent City.

No. 2906. Rhamnus Purshiana. Smith River Redwood Forest. 20 ft. h.

No. 2907. Sedum. S. Forks Smith River near S. Forks Station. S. obtusatum Gray.

No. 2908. Iris. Chaparral between Adams Station and Patrick Creek. I. macrosiphon Torr.

No. 2909. Chaenactis. With preced.

No. 2910. Pasania Echinoides. Bushes low, spreading. 2 to 3 feet high. Nuts in a place. Leaves blunt, small, entire. Only rarely notched as in specimen. With preced.

No. 2911. Pinus contorta. var. With preceding.

Adams Station to Shelley Creek, July 16, 1907

Gaertn. Gray var. sagittatus (Lindl.).

No. 2912. Pentstemon. Fls. azure blue. With preceding.

No. 2913. Umbellifer. Tomatium howellii Jepson. With preceding. See p. 146 B.

No. 2914. New to me. Whipplea modesta. With preceding. W. modesta Torr.

No. 2915. Veratrum fimbriatum. With preced.

No. 2916. Asarum. Central pale blotch running to summit along midrib. V. in so. Lat. Cent. Shelley Creek. See p. 179.

- From Adams Station to Shelley Creek the hills show bare in the main save for chaparral. The hills were at one time forested heavily as shown, first by the patches of timber and second by the dead timber. The opposite cañon wall, across the Middle Fork of Smith River looks at a casual glance as if it had been chaparral for age. But looking a second time one sees white shafts of standing dead trees and dead trees shining white litter the hillslope. The chaparral is in great part Quercus echinoides. Its characteristics come out here well. The low spreading bushy habit, the small blunt entire leaves and several acorns in a cluster. There was a big lot of this, covering thousands of acres as we went along, with it a great quantity of Pinus attenuata, 3 to 10 or 16 feet high, covering leagues and leagues and leagues in a fairly dense forest, but not pure. Also ran into a rather dwarfish colony of Pinus contorta var. (No. 2911), 3 to 18 feet high with roughish bark. There is also a great lot of Rhamnus. No. 2903, Greenei species. It looks quite distinct from any other species. California as well as Purshiana and I consider it good. Xerophyllum tenax is common; its radical

Shelley Creek to Waldo.

(Del Norte Co., California) (Josephine Co., Ore.)

in flower are spreading, past anthesis strictly erect, as the fruit matures the pedicels bend outward and the capsule is on a diverging pedicel. Azalea occidentalis is a low shrub in the chaparral and is further evidence that the forest prevailed here not so long ago. Rhododendron Californicum is not uncommon in the chaparral of these slopes. At Patrick Creek there is a small clump of Tan Oak (1 ft. diam., 40 to 55 feet high) through which the road runs and I note another small lot across the creek. These driblets are in virgin (unburned) forest. Lawson's Cypress is common along Shelly Creek. Fine trees. The young trees display beautifully the wonderful fern-like character of the foliage.

– Darlingtonia (sprays of) californica Torr. Between Big Flat and Bald Mountain. Also " Adam's Station and Shelly Creek at several places. Plentiful on headwaters of Shelly Creek and W. Fork ~~Creek~~. Illinois Creek.

– Taxus brevifolia. More in bottom of Shelly Creek than I ever before saw in any other two places. Abundant for miles. One could say there is a narrow grove of it. Most of it about 15 to 25 ft. h. and the largest trunks 1 foot in diameter.

July 17, 1907.

No. 2917. Douglas Fir seedlings. Cots = 5, 5, 6, 6, 6, 6, 6, 7, 7, 8, 8. Shelly Creek

No. 2918. Lilium pardalinum Kell. 6 ft. h. Leaves very narrow, the lower alternate, then a few in pairs, in 3's and so on up to 7, but not forming a whorl, the partial whorl not horizontal but (complete) at an angle or spiral; ~~then~~ well up a true whorl of one only, then alternate leaves only. All the above taken from the one plant coll. Rootstock horizontal, only half in specimen, crowded especially above with scales which are jointed. Petals recurving, upper half deep red, lower half yellowish, spotted. Anthers large, brown. Pedicels ascending from main axis, about 15 in cluster. Shelly Creek, in rich deep muddy loam of brush tangle by creek side.

No. 2919. Senecio triangularis Hook. By creek. Shelley Creek

No 2920. Senecio howelli Greene. In dry chaparral, just over California line. Seen in Cal. also.

No. 2921. Erigeron foliosus Nutt. Rays blue, fading purple at first. With preced. Seen in Cal. also.

No. 2922 Arenaria howellii new to me. With preced.

No. 2923. Phacelia. Rander branching and with the foliage forming a low mat. Fls. white with preced. P. frigida Greene.

– Veratrum fimbriatum, Common in chaparral, basin Illinois River west fork, near California line. Growing in driest soil. Compare other species. Panicles large, Yucca-like. See 2900, 2915.

x = V. insolitum n. sp.

No. 2924. Composite. Wet spingy hillsides. Headwaters of W. Fork Illinois River.

To Waldo via W. Fork of Illinois River

-Pinus monticola. On waters of W. Fork Illinois River.
Creek. Bears at 30 to 35 years, but also noted bearing at 13 years.
- Pinus Lambertiana, a few scattered trees on waters of W. Fork Illinois River.
- Pinus ponderosa, frequent, abundant about Waldo. Long cones with horizontally radiating scales. One of the approximations to P. Jeffreyi.
- Quercus Californica, common about Waldo.
- Quercus Garryana, frequent about Waldo. Occurs as shrub, small tree and tree 50 ft. high with trunk 2 or 3 ft. diam. The old trees do not hold any of the old leaves. The young growth does. I notice it on growth 4 to 14 feet high, but individuals standing alongside will be without the dead leaves. I have never noticed to my memory persistent dead leaves on Quercus Brewerri. But I cannot see that the shrubs here differ in any particulars from the Quercus Brewerri of the Kamrah region. The shrubs here have rather loosely broken bark but I notice the same kind of bark in the tops of undoubted Quercus Garryana. Leaves of 2 (indefinite) kinds are noticeable in their extreme forms.

July 17, 1907.

- Quercus densiflora. Patch on hillside near Waldo and an occasional tree seen on the lower part of East Fork Illinois. The keeper at the stage station on the west fork Illinois told me that there was a large body of it on the west of Selma, Oregon, on the Illinois River. I think he said he passed through it for 25 miles. He calls it Sovereign Oak which is the name for it in southwestern Oregon. He says Oregon White Oak is used for tanning. I showed him a specimen of Quercus densiflora and he recognized it as Oregon Tan Oak. He also gave corroborative evidence, saying that his partner who was with him on the Illinois trip told him Sovereign Oak was used for tanning in California; and that the wood was worthless, rotting very quickly.
- Linnaea borealis, in fl. E. fork Illinois
- Lawson Cypress, both forks Illinois.
- Pinus attenuata is unbranched (main axis) or with main axis branched in usually 2 or 3 strictly erect forks bearing cones dearily. This latter case is very usual and characteristic. I have seen old trees with horizontally spreading branches bearing cones but only old trees.
- Waldo is a village of a hotel, general store and postoffice, blacksmith shop, half-a-dozen shacks & houses. It is hopelessly crude and rough. The surrounding country to the very village is pretty. If only they would

Waldo to Upper Spring, Happy Camps Trail, Oregon. (traveling southerly)

lay out an orderly place and keep the trails of cattle off it — and pigs. In other words such villages in this region are too barn-yardy.

— From Waldo you take the trail to the right of the general store straight up the hill. You soon turn into the road running to the Queena Brown mine. Cross the river (ford) and take the main road, turning sharply to right. Follow past a gate with a roof over and ford the river by a bath house. Keep on, until roads fork at building, take left, cross river by bridge and keep all left hand roads and trails which takes me straight to the summit of the Siskiyous by the Happy Camp trail where one passes the Brewer Spruce in its original locality.

— Douglas Fir. Botanists rightly call it Douglas Spruce because (a) its leaves spread all around stem like spruces and resemble spruce leaves alike blunt more than fir leaves. The cones resemble spruce cones far more than fir cones and are pendent like spruce cones. The general habit of the tree is more spruce like than like firs whose radiating whorls are very regular. Douglas Fir has supernumerary buds in addition to the whorl just below terminal bud which makes it a spruce and not a fir. In only one particular does it resemble firs and that is in its

n. of divide on basin E. fork Illinois R., July 18, 1907.

bark which is roughly and deeply fissured and very unlike the smooth bark of the spruces with the deciduous scales. But woodsmen, of the lumber camps especially, recognize a conifer by its bark and seldom pay attention to its leaves. Consequently they all call the tree by the name of Fir, Red Fir, Yellow Fir, or simply Fir, and naturally for exactness the lumbermen have called the tree Douglas Fir. Cont. just below.

— Saxifraga peltata, petiole 3 ft. 9 in. high, the blade 1 to 1 ft. 9 in. broad. E. Fork Illinois R.

— Douglas Fir. Has weeping branchlets and in this respect is more like Spruce than Fir. I have just noted nearly pendulous branchlets 8 feet long, only the upper portion not strictly hanging straight down but a little curved. This is not uncommon. Pendulous branchlets 1 to 2 ft. long very common, especially with trees that are not crowded.

— Mutilation. — Tan Oak, 'jayhawked' trees

Douglas Fir — healed over stumps noted two on west fork Illinois River. This species shows special capability to perform this feat.

Madrona, often ringed and mutilated. Great power to heal over. Alder (A. rhombifolia), ringed trees at Cottage Grove, bark stripped for four feet but had healed over owing to cambium sticking.

— Mules feed greedily on Sadler Oak on trail but pass Garry Oak over

East Fork Illinois River, Happy Camp
Oregon. (traveling southerly)

Species of Broad-leaved Trees.

Tree form.	Shrub form
Quercus Garryana	Quercus Breweri (Orestadicna).
Quercus Wislizenii	Var. fruticosa.
Quercus agrifolia.	Forma normala Jepson
Quercus lobata	——— .
Quercus Douglasii	———
Quercus chrysolepis	Forma Jepson
	Var. Vaccinifolia.
Quercus Kelloggii - - - -	Var. Palmeri.
Umbellularia Californica -	Forma normala Jepson
Acer macrophyllum -	Forma erida "

— Madrona is remarkable for the way in which it attemps to recover from injury, storm or fire or rot. A rotten old stump with a single streak of good bark will put out a flourishing bushel of foliage. It rapidly covers fire or axe wounds, and is most courageous and hopeful in the way it goes on living. One never saw a disconsolate Madrona, as one sees a gnarled and expiring old oak, or weather beaten apple-tree-like Douglas oak or what not.

Trail, July 18, 1907.

as long as there is life Madrona is hopeful. buoyant, knowing not death. It is rarely that a Madrona ever dies, in the sense that it is not succeeded from the roots by young suckers

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No. 2925. Quercus Breweri (Garryana), shrub sprout from ~~tree~~ shrub cut down by axe. W. Fork Illinois River.

No. 2926. Quercus Breweri. Low (4 ft. h.) spreading shrub). W. Fork Illinois.

No. 2927. Quercus Breweri. Low, 4 to 6 ft. h. with procid.

No. 2928. Quercus Garryana. Tree 50 ft. h.; trunk 1 1/2 ft. diam, bark ribbon-fissured and interlocking. I see nos 2925 to 2928 pass into each other by easy gradation. Practically the only change is one of size. Waldo.

No. 2929. Quercus Garryana. The two spms. from two large trees. Waldo.

No. 2930. Quercus Garryana. Near Waldo young tree.

no. 2931. " " " " " abont 14 ft. h. No dead leaves.

No. 2932. Quercus Garryana. 14 ft. h. No dead leaves. Near Waldo

No 2933. Quercus Garryana. 14 ft. h. Dead leaves in top, of last year. Near Waldo.

No. 2934. Quercus Garryana. 14 ft. h. Dead leaves (last year) persistent in top. The last 4 numbers from young somewhat shrub-like trees growing within 30 feet of each other. The first two clear of last year's leaves, the last two with old leaves persistent

Josephine Co., Ore., (from Waldo)

Happy Camp Trail (to headwaters Indian Creek, Siskiyou Co.

No. 2935. Vancouveria parviflora Greene. By stream in shade, canim bottom, E. fork Illinois R., Siskiyou

No. 2936. Pericedanum. Dry hill. East fork Illinois. P. macrocarpum Nutt.

No. 2937. Phacelia. Annual! Hill slope, E. fork Illinois River, half-way to summit of Happy Camp Trail. = P. virgata Greene. see p. 202c

No. 2938. Hieracium albiflorum. With preced.

No. 2939. ~~Montia~~ Hackelia setosa (Piper) Itn. With preced.

– Leptotaenia Californica, roots eaten by Klamath Indians who call it "wild sage" – Jimmie Davis.

– Pendant oak balls on leaves of Quercus chrysolepis vaccinifolia eaten by Indian boys who call them _____ and esteem them highly. Jimmie Davis says they also grow on the form.

– Saxifraga peltata. Indians eat the petioles, stripping down the bark. Best when young. I tried it and found it very pleasant. They eat Leptotaenia Californica in same way. Jimmie Davis says he likes this better than Saxifraga, "Why, I could live on this."

– acer glabrum, abundant at and near divide of Siskiyous, Happy Camp Trail. It is abundant throughout range of the Siskiyous evidently, as I saw it in great plenty on the Kalsey Trail. Nowhere else so abundant in California.

– Boschniakia strobilacea, 19 spikes within 8 sq. ft, Indian Creek.

– Bryanthus empetriformis Gray. No. 2850. see p. 151.

– Arctostaphylos × p. 160. Could not be A. glauca.

– Vaccinium caespitosum Michx. Cont. see p. 151. no. 2851.

– On the Happy Camp trail from Waldo, going towards Happy Camp, about Happy Camp we ran into a hailstorm – the hail stones as big as quail's eggs. Our mules at once took shelter under Incense Cedar trees, like Indians! for it is said lightning never strikes Libocedrus decurrens.

Cont. from p. 141. At Montague, by prearrangement I met Alden Sampson, club man of New York City; we traveled together to Etna Mills securing our seats on the box (see p. 141 ante) by engaging them in advance. It took two days at Etna Mills to round up everything, repair saddles, get the pack saddles together, secure the horses and so on. (see p. 140a ante.).

– Tellima grandiflora Dougl. No. 2945. See p. 187.
– Tolmiea menziesii T. & G. no. 2940.
– Oenothera alyssoides H. & A. var. decorticans Jepson. No. 2729 cont. from p. 55.

– Whiskey Camp, cont. from p. 148. At this point in the cañon we found a beautiful camp spot with a rough sign on a tree "Whiskey Camp". My companion Alden Sampson of New York City was all for tearing down the sign instantly, not because he is a teetotaler (which he is not) but because it outraged his esthetic sense! However, he was prevailed upon to desist when he learned Whiskey Camp is a very old landmark on the trail and a guide post in the mountains

Indian Creek (trib. Klamath River), headwaters, over Siskiyou Divide, July 19, 1907. Siskiyou Co. (from Waldo,

No. 2940. Saxifragaceae. Bilobiate, 3 upper sepals of same length, spreading upwards and backwards, 2 lower of same length, turned downward. Stamens 3 (but no time to make sure on trail). Petals filiform. Headwaters Indian Creek. see p. 186b.
No. 2941. Collinsia. upper petals white or nearly so, lower lip pale blue. Headwaters E. Fork of the Illinois River, Siskiyou Co.
No. 2942. Erigeron aliceae Howell Composite. Heads showy, pale lilac (nearly white) rays; 2/5 the plant taken. Headwaters E. Fork Illinois River.
No. 2943. Vicia. with preceding. (V. calif. Greene).
No. 2944 Nemophila. " "
No. 2945. Saxifragaceous. With no. 2940. See p. 186b.
No. 2946. Libocedrus decurrens seedlings. In their third year. Note that the plant is bilateral from its first to its third year. Indian Creek.
No. 2947. Salix scouleriana Bar. 5 in. diam. trunk and 14 ft. high. usually 6 to 10 feet and common in the high mountains wherever I have been this trip. Indian Creek
No. 2948. Berberis pumila Greene Indian Creek.
– Quercus chrysolepis, noticed a typical vaccinifolia shrub 12 feet high, very bushy, with broom-like tops to the branches – Indian Creek.
– Quercus Garryana – young trees 12 feet high stump sprout freely when firekilled – Indian Creek.
No. 2949. Brewer Spruce. Top branchlets. Picea breweriana Taken from tree from which ~~filled~~ Sbg specimen came. Headw. Indian Creek.

Indian Creek to Happy Camp
(Reeves' Ranch)

- Happy Camp is quite a bit of a settlement. But it is old, fearfully down at the heels. It is old. Its palmy days were in the fiftys. Its hotel and other buildings were quite fine structures for the time and place. Here we met the most distinguished man of the place. Not Lane, the store-keeper. Not the hotel man. Not the saloonkeeper, nor various dignified old loafers of the days of 50-60, but "Baugh". Baugh, who owns a pack train running between Yreka and Happy Camp. Baugh who is a Chinaman, one of these very jolly (see p. 202 b.) Chinamen of the most characteristic and likeable type in all the Californias and known to all Californians from the days of old. He has a wife and children in Yreka (see p. 202 a) and is a "heap smart China-man" according to one of his compatriots. Mr. Sampson wanted a crupper for his saddle-mule because there was a little pimple of a sore under the tail; his cloth crupper would not do. He raised the tail and showed to the Chinese astride his mule. Baugh fairly howled with derisive laughter and good nature. Then he began to banter. Him get sore! Let him get well again!
- Coming down Indian Creek we passed "Classic Hill", a placer mining camp in the forest.

July 20, 1907.

We camped the night at a big ranch (for the country about two miles this side (easterly) Happy Camp. Next day we go on about 23 miles up the Klamath past Nolton and Lowden's (P.O's) to Nutson's Ferry, the second ferry, pack animals 10 cents, saddle animals 25 cents, to a ranch* one mile beyond Everell's Ranch where the gave us most delicious freshly preserved cherries. In return we left them a supply of our excess provisions.

— On the Klamath River in Bed.

Populus trichocarpa.
Many willows
Cratagens.

Also on canon wall: Libocedrus decurrens, Black Oak, Pinus ponderosa, Douglas Fir, Oregon Oak. Alnus rhombifolia

Happy Camp to Hamburg, July 21, 1907
(Burhart's Ranch.)

Hamburg is mainly an Indian settlement. All along the river are marks of both old and recent settlements, old and recent mining beds.

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* Burhart's Ranch to Hamburg July 22, 1907
Near Hamburg noticed an Alnus rhombifolia young tree that had been zone girdled, a band about 6 inches wide. Yet the

Siskiyou Co.

Hamburg to Scott Valley via

tree is alive and flourishing! The inside bark stuck when the mutilation was done. The inside bark does not stick now so I imagine it was done when the sap was down.

No. 2950. Quercus Garryana. All from shoots of one young stump. 3 in. diam. Klamath R.

No. 2951. Crataegus douglasii 8 ft. h. Stream bed of the Klamath, Lowden P.O. Spreading shrub but branches erect mainly 9 ft. h.

No. 2952. Salix melanopsis Hindsiana ~~Ed. Cohn~~ prob. vinalanopsis 5 to 20(!) feet high. Slender and tall. Streambed Klamath River at Burhart's Ranch.

No. 2953. Salix sessilifolia Hindsiana Lenth. ~~Ed. Cohn~~ chiefly 5 to 8 ft. h. With preced. Both everywhere along the Klamath.

No. 2954. Eriogonum nudum var. pubiflorum Closely allied to E. nudum of Berkeley Hills. Flowers sulphur yellow. Hamburg, on the Klamath River.

No. 2955. Quercus Garryana. Stump sprouts leave all from one stump. Hamburg, on the Klamath River.

No. 2956. Eschscholtzia californica chem. Miamber Trail, Scott Bar to Scott Valley.

No. 2957. Eriogonum vimineum with preceding.

No. 2958. Pseudotsuga menziesii (Mirb.) Franco Douglas Fir: On Miamber Trail, witches Broom, 11 feet up trunk of a tall tree, normal above broom. Broom very dense, drooping, forming with its pendulous branchlets 4 to 8 feet long a perfect bower 9 to 11 feet in diameter inside.

Miamber Trail, July 22, 1907.

Weeping Trees - California.

Quercus lobata

Picea Breweriana.

Pseudotsuga taxifolia - especially marked in witch brom trees. Never saw so many before as on the Miamber Trail today - noticed half-a-dozen.

Quercus chrysolepis, var. pendula.

Quercus Garryana - Noticed a stump 4 ft. h. today, with a cluster of sprouts, a few of which hung straight down.

Table of Distances.

from Wood's Ranch, Klamath River:

to	Miles
Happy Camp, (west)	15
Lowden's P.O. (East)	5
Everills Ranch "	10
Burrhart's Ranch "	11
Hamburg, East	14
Scott Bar "	19
Miamber Trail from Scott Bar to Scott Val.	10
Scott Valley level to Greenview	10
Etna (from Greenview).	6

S Burton

Scott Valley to Etna, July 23, 1907

- Sugar Pine, took 2 bark specimens on Trianka Trail, July 23, 1907. The trees were 4 & 5 ft, respectively. The 4 ft. tree had bark in. thick; the 5 ft. tree had bark in. thick. Trees 150 ft. h.
- Populus trichocarpa, the most beautiful and extensive groves I ever saw in Scott Valley at lower end of Shackelford Valley, and in Shackelford Valley.
- Douglas Fir. Noticed some barns most beautifully reddish brown weather stained. Also some cottages. The boards unplaned and unpainted. Valley of the Klamath. Jimmie says Douglas Fir good.

No. 2959. Compositæ. Fls. yellow. Very attractive. Hill slide. Shackelford Valley. Malacothrix floccifera

No. 2960. Compositæ. Fls. pale blue. Scott Valley, dry lands. Also noted on Klamath. strictum ssp. proliferum var. proliferum

No. 2961. Eriogonum. Fls. clear white. Patterson creek bed, Scott Valley.

Etna to Callahan to Gazelle, July 25, 1907.

- Crataegus douglasii 25 ft. h. + tree like. Scott Valley apparently same as seen on Klamath & coll.
- Prunus subcordata, small tree 15 ft. h. with trunk 5 in. diam. and distinct crown. Scott Valley.
- Quercus Oerstediana, clumps of young trees 12 to 15 feet high in small circles, the circles filled in centre. These clumps are very marked on the thinly wooded hills from Callahan to the Mountain House (stage station) and beyond to the summit (5100 feet). Just beyond the summit on a steep slope there is low bushy Quercus Breweri and every gradation to the small trees of Quercus Oerstediana. This is an outlying part of the Scott Mountains of which there is a good view from near the Mountain House, as they lie to the south of Callahan.
- The stage line from Etna runs south to Callahan & southerly, then northeasterly to Gazelle. It is a roundabout business.
- The Scott River at Callahan is a shallow stream but they use a dredger in mining its gravel bottom! They dig a hole deep enough for the dredger to work, fill it with water, and as the dredger advances and increases the hole in front, the tailings are run in behind.

Mountain House to Gazelle
July 25, 1907.

No. 2962. Compositae. Rays 3, broad, 3-lobed, a pink streak on middle of each lobe beneath and running to base. Mountain House, Scott Mt.

– After passing the summit beyond Mountain House, the country and its vegetation instantly changes. The forest diminishes, and from the divide one looks for miles over the desert scenery* of the Shasta Valley and eastward. My eyes rest with a sense of indefinable lure and attraction on that type of scenery. I like its breadth, its sweep, its mystery

* fatter than the dense forest.

Some distance down grade I passed a tree (with trunk 1 ft. diam. and distinct crown) 20 feet high of Cercocarpus ledifolius in full fruit. I saw it only as the stage passed swiftly, right hand. It might not have been ledifolius but could not have been the large leaf No. 2810.

Juniper over all country.

Sherwood Valley, July 30, 1907.

– Pebross, the bark peeler says: I do not like to clean up snags and rough trees after another man. I like to work in fresh timber. I can plan my work right, lay my trees better, not as much trouble, turn out more work and not work so hard, it looks like something when I get done with it, and its more satisfaction.

– Cornus Nuttallii – 50 ft. h. and 1 ft. diam. at 1 ft. a.g.

– Bark should be taken off in broad pieces and not cut into narrow strips. These pieces curl up, are easily handled, do not not break in handling as much as uncurled narrow strips, so there's less loss in transportation. A strip or ring should not be so wide that when curled up one man cannot handle it – on account of its great weight. Not economical

Sherwood Valley

– Mrs. Carey says peeling closed down August 9, 1905 and August 17, 1906. Peeling is good now, was unsatisfactory when you were here last (June 25-27, 1907). The bark is tougher now, not so brittle as then, not so much loss in handling, or rather peeling.

– Petross, the bark peeler says: Bark is tougher now, not so much sap in it; does not break up so badly in coming off. But if 3 or 4 hot days were to come it would be as bad again. I like to peel when it comes off finely. Its a satisfaction to do nice clean work.

July 30, 1907.

Tree No. 10. Age = 55 years, sound trunk but estimated in part. Diam. trunk wood = 9 1/4 in. at 2 ft. 11 in.
Weight = 205 lbs (1st rim = 73)
Felled = 28 ft. 10 in. Height = 77 ft.
Diam wood at end last rim = 7 in.
Trunk badly rotted in a groove on one side, the result of fire-scar. In addition over-topped at a later period, the upper portion of trunk suddenly slender and with thin crown.

Tree No. 11. Jayhawked. Weight = 81 lbs (2 rims). Diam at 2 ft = 8 1/2 in.
Height = 55 feet.

Tree No. 12. Jayhawked.
Weight = 62 lbs (2 rims? and some chips from above). Diam = 7 1/2 in at 2 ft. Height = 50 feet

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Sherwood Valley

Tree No. 13. Diam. = 6 in. at 2 ft.
Wright = 39 lbs (2 rims). Jayhawked.

Tree No. 14. Wright = 150 lbs.
Jayhawked. Wood diam = 7 in. at 2 ft.

Tree No. 15. Diam. 2 ft. 3 in. at 3 ft.

150	83
160	90
18	124
94	102
104	124
123	120
133	135
145	118
105	58
114	954
116	
96	
124	
99	
1581	

Bark 1½ to 2 in. thick,
Holding 1½ in. well upward at 60 ft. a full ¾ inch thick

Age = 132 years
96 feet peeled
Height = 116 feet.
Trunk 9 in. diam. at end last rim.
Bark " " " ¼ in.

Total wright = 2535 lbs.

July 31, 1907.

Tree No. 16. Age = 127 years (hollow in center trunk)

105	135	118	Bark 1st rim = 2¼ in.
114	89	90	" at 39 ft = 1¼ in.
90	126	1533	Peeled 75 feet.
91	111	lbs	Height = 118 feet
105	121		Diam. trunk = 2 ft ½ in. at 2¾ feet above ground.
130	108		

Tree No. 17. Jayhawked 15 lbs.
one rim. 30 ft. h.
5 in. diam. trunk at 1 ft.
Bark ¾ in. thick at 1 ft
" ½ " " at top of rim.

— Monotropa uniflora. cf. p. 146 f ante and p. 172 ante. There does not appear to be any definite locality on record in the literature for California. Piper (Fl. Wash.), Rydberg (Fl. Rocky Mts.), Britton (Ill. Flora) say "California"; perhaps Piper and Rydberg copied from Britton. In my Manual I say "Del Norte Co." On what this was based I cannot now say. — May 13, 1936

Berkeley

South of Bay Addressees.

- H. R. Judah, Sec. Board Trade, Santa Cruz.
- C. F. Withrow, " " " , Saratoga.
- Geo. W. Gretter, " " " Watsonville
- J. S. McMurtry, " " " Los Gatos.

(Jennings wrote to all of above in my behalf, Tan Oak bark.)

- H. A. Greene, Monterey, Calif. interested in Tan oak.

- Cont. no. 2690, p. 39. It is something of a point in my mind, in relation to the affinities of this plant, that in the field I wrote it down as a Clarkia; see p. 39 above.*

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* I describe it in Fl. Col. as Godetia epilobioides Wats. var. modesta Jepson.

1907.

Quiz for Tannery Men.

- Do you use second-growth bark? If not, why?
- How thin bark will you accept? What is your rule? Your practice?
- Does bark deteriorate if well sheltered?
- How dry must bark be?
- Why shouldn't the tanners have a standard weight cord?

- Klamath Range. I applied this name to the ridge west of Cottage Grove, of which Preston Peak is the dominating mountain. This use has no precedents on maps and I let it lapse. See U. S. Topographic Maps (Geol. Surv.)

Berkeley

Mendocino Co. Addresses.

— Carey, Foreman. Bark Camp
Petross, Bark Peeler, Sherwood "

— Cont. p. 163. no. 2874. Pentstemon deustus Dougl. I had collected this before but on account of its corolla color it looked new in the field

— Prof. Howard Moses remarked that his book on Politics had sold well but not in California. Said he: Oh well, a prophet in his own country! Then Miss Fitch: Like old days in California, it was always the man from the East, the man who had come in on the last steamer! By next "Steamer Day" he was no-where! A new man from the East had taken his place! — Sept. 1907

— Cont. from p. 176. Near Gasquet my riding mule bolted. I could do nothing but keep my seat and pull on the bridle reins and keep him straight until he ran himself out. It is my notion he got a hornet in his ear. Mules and hornets do not agree. Finally I got him back to the road and into my pack train. But what a helpless feeling! One can only keep every muscle alert, ready for any emergency — and perhaps control the direction of the mule's stampede a little.

— Cont. from middle p. 188. This chinaman is a truly famous character. Jimmie Davis tells me that his two boys went through the University and are now doing well in San Francisco. But we differ about his name: I recorded it at the time as Baugh. Jimmie tells me that he was known as China Gaun. — June 23, 1940, at Yreka

→ Cont. from p. 188. Chinese were often extremely jolly. It was a marked characteristic of their temperament. Such Chinese would seize every advantage to have a bit of fun. Their good humor was frank, free, open. The later Japs were often good humored but there was a certain reserve, often a kind of slyness.

– Cont. no. 2937. = Phacelia heterophylla Pursh.

– Cont. no. 2881. We followed the Kelsey Trail across the western Siskiyou Mts. from Cottage Grove (on Klamath) to Big Flat on the South Fork Smith River. No. 2881 was collected on the divide which would be near or at Elk Valley of present day Forest Service Klamath National Map.

– Cont. no. 2797. Mimulus inconspicuus Gray. Det. w.h.g.

Kelsey Trail. cf. ante pp. 159-172.

It is not so easy now (June, 1944) to make my notes harmonize with the maps - but trails have probably changed since 1907.

1. On leaving Cottage Grove on Klamath River we trailed up stream. The distance may have been very short - a half-mile or a mile.
2. Then we struck up a ridge to Elbow Camp (see Elbow Spring on Klamath Map, U. S. Forest Service, west half, 1934.)
3. Next we went down into "Pitcher Plant Creek" of my notes, "Willis Hole" of the packers, probably Vann Creek of above map.
4. We climbed out to Cedar Camp, which is "Onion Patch" of the packers. This Cedar Camp is not on map (U. S.) and must not be confused with Cedar Camp of a trail west from Klamath River further south.
5. Summit of the Siskiyou Mts., 12 mi. south of Preston Peak.
6. After the summit, we trailed down west slop to South Fork Smith River.
7. Quartz Creek, Jones Creek, Big Flat. Jones Creek runs through Big Flat.
8. Red Hill, Bald Mt., Crescent City.

1907

Twp 40, Sec 10, R. 7. W.
N. E. cor sec 10. N. E. direction from that

Ben Stout, Gazelle

Queries

How much will a 4 ft. log square?
- Can homestead act be applied to timber land?
- How much does it cost to scrip land?

- Abel Faivre's "The Girl with the Fan" in the Luxemburg Gallery. "He has put into the painting the strange living interrogation of ~~with~~ the eyes, found only in one other that I know, the most famous portrait of all time Leonardi's immortal Jocondé.

- Walter Frye, Three Rivers, Acting Supt. Seq. Park.
- Frank Braun, Badger.
  nephew of Hopping

Siskiyou County Addressee

- Bert Finlay, Etna, has pack-mules to rent.
- James Davis, Etna, half-breed Indian boy.
- Ruel Bar, Etna (Denny Bar Co.)
- Karl Denny, Mrs. Karl Denny, Etna (Miss May Lemon)
- Crow, Etna, High School lad interested in botany
- C.E. Shillingford, Crescent City (Fire Warden)
- L.F. Cooper, Crescent City (Lawyer)
- Phil. Stevens, Forest Ranger, Big Flat Del Norte Co.
- Crow, Etna, High School boy, interested in botany.
- Boodleman, Etna, U.C. Boy, athlete

Photo Record. Spool No 1.

No 1. Marble Mt crater, 8-1/25 3 oclock, very bright.
No 2 Alpine Hemlock " " 9.30 " "
" 3 Marble Mt. Red Fir + alpine Hemlock 10.00 bright
" 4. " " Alpine Hemlock, 11.00 very bright
" 5. " " Brewer Spruce, 4.00. 1/20-8.

Spool No. 2.

No. 1. Crossing Klamath. 8 - 1/25
" 2 Brush west Packer's Camp (Arc. manzanita, Cerasus, Ceanothus velutum) abies concolor + Libocedrus rising out of it.
No. 3. Brewer Spruce No. 4. Country of Brewer Spruce with Preston Peak in background.
No. 5. Brewer Spruce, 8 ft. 5 in. at 4 ft., 65 ft. h.
No. 6 Pinus monticola, bark (exposed twice?)

Spool No. 3.

No. 1. 2. 3. Brewer Spruce, 1/25-8, 1/25-11, 1/50-8
No 4. Mixed young growth Tan Oak + Yellow Pine 4 to 6 feet high, on fire burns which cleared the Red Hill completely save for a few scattered trees Yellow Pine & Douglas Fir 1/25-8
No. 5 Tan Oak killed down to low scrub by repeated fires, Red Hill, Yellow & Duck Cone Pines in background. Tan Oak reprod 5 ft h. Douglas Fir and Blod in background. No. 6
Nos 5 & 6 = 1/25-8 1/25-8 Red Hill

Spool No 4

Nos 1, 2. 3. Hemlock on Redwood in Crescent Forest. See p. 175. 45-2 sec; 32-1/2 sec; 1/25 sec. 8
5 Garry Oak ringed on Indian Creek. Trees 2-3 ft. diam, 65 ft. h.

Odds and Ends of Books.

Romany Rye, George Borrow.
Shadow of a Great Rock ('49 story). Lighton
Beatrix of Clare H. Scott (Lippincott). (Putnams)
Canticle of the Sun, St. Francis de Assisi. (Rubric Series Duffield & Co.)